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UNITED STATES DEPARTMENT OF AGRICULTURE  
OFFICE OF EXPERIMENT STATIONS  
E. W. Allen, Chief

CLASSIFIED LIST OF PROJECTS  
OF THE  
AGRICULTURAL EXPERIMENT STATIONS

1925-26



UNITED STATES DEPARTMENT OF AGRICULTURE  
OFFICE OF EXPERIMENT STATIONS  
WASHINGTON, D. C.

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CLASSIFIED LIST OF PROJECTS OF THE  
AGRICULTURAL EXPERIMENT STATIONS,  
1925-26

The total number of projects reported by the State experiment stations as active during the year ended June 30, 1926, was 6,710, or 148 per station. Of these, something over 500, or 10 per station, were Adams projects and 600, or 12 per station, were Purnell projects. Deducting 58 purely administrative and regulatory projects, the number devoted to research and experiment is found to be 6,652. Adding the 155 projects of the stations in Alaska, Hawaii, Porto Rico, Guam, and the Virgin Islands gives a total of 6,865 research and experimental projects, as compared with 5,634 such projects the previous year, an increase of 1,231 projects.

About one-half of the increase in number of projects was due to new work under the Purnell Act, but, nevertheless, a marked and significant general increase of projects is indicated.

The principal increases in number of projects during the year were as follows: Agricultural economics 147, home economics 102, animal husbandry, including poultry, 53, genetics 45, rural sociology 44, dairying 33, and agricultural engineering 31.

The relative proportions of the different groups of projects remain practically the same as in the previous year. Field crops led with 1,642 projects, followed in order by horticulture 918, animal husbandry 554, plant





pathology 486, agricultural economics and rural sociology 426, entomology 407, dairy animals and dairying 330, soils 321, agricultural engineering 221, veterinary medicine 216, fertilizers 193, genetics 171, home economics 156.

Projects carried on under the Adams fund are designated by (A), and those under the Purnell fund by (P); those not designated are supported with Hatch and other funds. The State designated after each project indicates the station at which it is carried on.

October, 1926



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CHEMISTRY

Chemical Studies, Various.

- Chemical analysis of soils in relation to availability of constituents. Ind.
- Analysis of the agricultural soils and limestone of the State, and of miscellaneous materials. Ky.
- Chemical study of Gallatin Valley soils. Mont.
- Chemical study of Gallatin Valley ground water. Mont.
- Protein investigations.--Physico-chemical studies on proteins.  
Alkali binding; a comparison of the electrometric titration of proteins and of phosphoric acid with sodium and calcium hydroxides. Minn.
- Protein investigations.--The effect of alkali on cystine. Minn.
- Protein investigations.--An immunological and chemical study of the alcohol-soluble proteins of cereals. Minn.
- Chemical and biological studies in animal nutrition.--A study of certain indolinones. Minn.
- Protein investigations.--An alcohol-soluble protein prepared from rice. Minn.
- Protein investigations.--Proline and tryptophane as factors influencing the accuracy of Van Slyke's method of nitrogen distribution in proteins. Minn.
- Protein investigations.--Physico-chemical studies on proteins--electrical conductivity and ion concentration studies of protein compounds. Minn.
- Protein investigations.--Evidence of a new amino acid in proteins. Minn.
- Protein investigations.--The electrodialysis of agar. A method for the preparation of the free agar acid. Minn.
- Protein investigations.--Physico-chemical studies on derived proteins. Minn.
- Chemistry and metabolism of plants by varying degrees of vegetation and reproduction. (A) N. H.
- Influence of climatic factors on the chemical composition of plants. Wis.

CHEMISTRY--Chemical Studies, Various. (Cont.)

- The chemical and physico-chemical properties of plant tissue fluids.  
A study of the fluids of the native vegetation of Oahu, Hawaiian Islands. Minn.
- Chemical studies of pollen. Minn.
- Composition of corn pollen. N. Y. State.
- The investigation of the chemical constituents of green leaves.  
(A) Conn. State.
- A study of the coloring matter of cranberries. (A) Mass.
- Pigments of the grape. N. Y. State.
- The phospholipins of seeds. (A) Okla.
- The chemistry of nectar secretion. Iowa.
- Analysis of alfalfa roots and tops for nitrogen. Minn.
- Phytosterols of the endosperm of grains. (A) N. Y. State.
- Preparation and study of cereal glutelins. (A) Nebr.
- A study of the factors which affect the quantity of gossypol in cottonseed meal. Okla.
- Physiological and chemical studies on milkweed. Iowa.
- Soybean oil studies. (P) Miss.
- A chemical study of the velvet bean.--To determine in what respect the velvet bean is deficient in nutritive properties or is otherwise injurious. (A) Ala.
- Determination of the effect of varying amounts of potash on the composition of oranges. Fla.
- The biochemistry of disease resistance in plants.--(a) Alcohol production by Fusarium lini, (b) respiration of apple twigs in winter, (c) development of enzymes during germination of wheat, (d) pectosinase. (A) Minn.
- Effect of defruiting upon chemical composition and fruit bud formation. (A) N. H.
- The biochemistry of carotinoid pigments in animals. Minn.
- A chemical study of blood and excreta of dairy animals. Mich.
- A study of colostrum, with special reference to the effect of heat (pasteurization) on its physico-chemical, bacteriological, immunological, and nutritional changes. (A) Mo.



CHEMISTRY -- Chemical Studies, Various. (Cont.)

- The properties of cascain. N. Y. State.
- The chemistry of milk as a colloidal system. (A) Minn.
- Toxicity of zinc in buttermilk. Okla.
- Studies in regard to Xanthophyll, the natural yellow pigment of the egg yolk, body fat, and blood serum of the hen. Mo.
- Quantitative estimation of heat of methane fermentation of carbohydrates. (Pa. Inst. Am. Nutr.) (A) Pa.
- Determination of the iron content of certain food products. Ark.
- Analysis of diabetic foods. Conn. State.
- Losses of iodine in salt. Mont.
- Chemical studies on forest products. Minn.
- Variations in analytical weighings due to differences in temperature. N. Y. Cornell.
- Standardization of biological stains. N. Y. State.
- Miscellaneous chemical observations. Mont.

Methods.

- Improvement in methods of soil analysis. Wis.
- A study of methods for the determination of hemicellulosis. Iowa.
- A study of the different methods used in the analysis of skim milk for butterfat. (Davis Substation) Calif.
- A study of the different methods used in the analysis of cheese for butterfat and solids not fat. (Davis Substation) Calif.
- Investigations to devise a more satisfactory method for the determination of lactose in milk. Ill.
- Comparison of the Babcock and Majonnier tests for milk. Calif.  
(Davis Substation)
- Simplification of the apparatus used in the Majonnier test for solids in condensed milk and ice cream. Wis.

CHEMISTRY--Methods. (Cont.)

A comparative study of methods for determining total solids  
and fat in milk, cream, and ice cream. Conn. Storrs.

Investigation of proposed official methods of analysis. Minn.

Poisonous Plants. (See also BOTANY and VETERINARY MEDICINE)

Chemical study of the toxic principles of Aconitum columbianum.  
(A) Wyo.

Chemical study of the poisonous principles of arrow grass.  
(A) Wyo.

Chemical examination of Delphinium bicolor. (A) Wyo.

Chemical examination of Delphinium cucullatum. (A) Wyo.

Chemical study of the toxic principles of Delphinium menziesii. (A) Wyo.

Chemical study of the toxic principles of the seeds and fruits  
of Lupinus argenteus. (A) Wyo.

METEOROLOGY.

Miscellaneous.

Climatology. Ariz.

Meteorology. Colo.

Meteorological report.--To determine the daily precipitation,  
evaporation, and maximum and minimum temperature at the Rice  
Experiment Station, Crowley, Louisiana. La.

Weather observations, with special attention to frost protection. Mass.

Record of weather observations. (Duluth Substation) Minn.

Weather records. (Grand Rapids Substation) Minn.

Meteorological observations. Mont.

Climatic data at the Huntley Experiment Farm. Mont.

Climatic data in the Judith Basin. Mont.

Climatic data in northern Montana. Mont.

METEOROLOGY--Miscellaneous. (Cont.)

- Meteorological records.--To compare the climatological conditions of the different periods and to correlate the various weather conditions with the success or failure of different crops. Virgin Islands.
- The quantities, forms, and sources of nitrogen and sulphur contained in the rainfall at Ithaca. N. Y. Cornell.
- Relation of meteorological observations to yields of certain crops grown continually. (P) R. I.
- Snow survey. Utah.

BACTERIOLOGY.

Fermentation.

- Studies of pentose-fermenting bacteria. Wis.
- Fermentation of certain carbohydrates with the isolation and utilization of the fermentation products. Iowa.
- Bacteriological studies of wild yeasts.--To study the characteristics of wild yeasts isolated from apples and cider. Ill.
- The association of alcoholic yeast (Saccharomyces ellipsoidens) and vinegar bacteria (Bacterium pasteurianum) as applied to the making of vinegar as a fruit by-product. (A) Wash.
- Studies of vinegar fermentation. Mich.
- Vinegar culture work. Wash.

Food and Drinking Water Bacteria.

- Microbiology of the food of man and domestic animals. Mich.

Nodule Bacteria of Legumes.

- Studies on the longevity of B. radicicola in the soil. After the crop is removed how long do the bacteria live in the soil and retain the ability to inoculate the next crops? Mo.
- Nodule organism of alfalfa and its relation to those of sweet and red clover. (A) Ky.



BACTERIOLOGY--Pathogenic Bacteria. (See also various diseases under  
VETERINARY MEDICINE, pp. 372-386.)

- Biological characters of Bact. pullorum. R. I.
- Effect of disinfectants on Bact. pullorum and Bact. gallinarum. R. I.
- Studies of the Coccaceae. N. Y. State.
- Conidia formation in saprophytic bacteria and its relationship  
to filterable virus diseases of plants. (A) Ark.

Miscellaneous.

- Generic types of bacteria. N. Y. State.
- A study of the anaerobic bacteria. N. Y. Cornell.
- Studies in bacterial physiology. N. Y. Cornell.
- Value of certain carbon compounds as a source of energy for  
Azotobacter. (A) Colo.
- Studies of bacteriological technic. N. Y. State.

BOTANY.

Anatomical Studies.

- Further work on the histology of the phloëm in certain woody  
angiosperms. N. Y. Cornell.
- Studies in embryogeny in angiosperms. N. Y. Cornell.
- The anatomy and morphology of angiosperm flowers. N. Y. Cornell.
- Morphological study of Mimulus and Mimetanthe. N. Y. Cornell.

Fungi.

- Fungi of Arkansas. Ark.
- Fungi of Porto Rico. N. Y. Cornell.
- Study of plant pathogenes from the point of view of their biolog-  
ical characteristics.--The determination of biological relations  
in the Fungi imperfecti. (A) Mich.
- Factors governing conidial production by parasitic fungi. N. Y. Cornell.
- The influence of environment on infection by plant parasites. (A) Wis.
- A study of Armillari mellea with the purpose of finding practicable  
ways to put an end to loss from the fungus among trees and shrubs  
attacked by it. Calif.

BOTANY--Fungi. (Cont.)

General taxonomic study of forms in the genera *Botrytis* and *Sclerotinia*, especially with respect to the interrelationship of these forms, host ranges, and biological strains. . N. Y. Cornell.

Sexuality in the genera *Botrytis* and *Sclerotinia*, and the occurrence of heterothallic forms. N. Y. Cornell.

Studies in the physiology of the genus *Fusarium*. (A) W. Va.

Life histories and classification of the fungus genus *Mycosphaerella*. (A) Md.

A comparative study of muriform-spored genera of the Ophaeriales, and a monograph of the genus *Cucurbitaria* in the United States. N. Y. Cornell.

The physiology of phytophthoras. W. Va.

The development of disease-resistant varieties of farm crops.--The genetics of biologic forms of *Puccinia graminis*. Minn.

Morphological and taxonomic studies of *Pyrenomyces*. N. Y. Cornell.

Studies of species of *Pythium*. Conn. State.

A monograph of the monilioid *Sclerotinias*--taxonomy and life history studies. N. Y. Cornell.

Biology of *Sclerotinia* spp. Minn.

A complete study of *Sclerotinia libertiana* Fuckel as a plant parasite. N. Y. Cornell.

Investigations into the life history and parasitism of *Sclerotinia rolfsii*. (A) Ga.

The relation of microspores, "Spermatia", to life history and propagation of certain ascomycetes. (A) Ga.

Plant Introduction.

Plant introduction. Tex.

Seed and plant accession. Trying out of new and introduced crops and perfecting those of value to California conditions. Calif.

Introduction of exotic trees.--The securing of trees that will succeed under adverse soil and moisture conditions in general, on sand dunes. Mich.

BOTANY--Plant Introduction. (Cont.)

Tests with imported grasses and forage plants. S. C.

Forage investigations.--(a) Grasses and legumes for hay and seed, (b) cultural tests with alfalfa, (c) orchard grass selection and improvement, (d) introduction and testing of miscellaneous forage crops, (e) seed introduction. Idaho.

Plant Nutrition. (See also Fertilizers, pp. 42-54)

The nutrition of plants. Mo.

The nutrient needs of crops (A) R. I.

The organic nutrition of plants. (Berkeley Substation) Calif.

Physiological effect and relationship of nutrient elements upon and to plant growth. (A) R. I.

Study of the translocation of food material of the wheat seedling. Iowa.

The method of movement of water, nutrients and food in plants. N. Y. Cornell.

Absorption of solutes by plants, with special reference to balanced solutions.--To determine a rational system for providing the proper salt requirement for agricultural plants from the point of view of proper rations or balanced salt action. (A) Mich.

The carbohydrate metabolism of plants. (Berkeley Substation) Calif.

Physiological function of different sugars in plant metabolism. N. Y. Cornell.

Storage of sugar and other carbohydrates in wood and bark of maple and other trees. (A) Vt.

Investigation of the food requirements of plants growing in sand or in soil cultures. (A) Md.

Chemistry and metabolism of plants by varying degrees of vegetation and reproduction. (A) N. H.

The effect of varying the length of day on plant growth and chemical composition. Md.

Water requirements of crops as related to plant characters and environmental factors. (A) Nebr.



BOTANY--Plant Nutrition. (Cont.)

Relations of the morphology and physiology of plants to drought resistance. Kans.

Plant nutrition and its relation to parasitism, involving a study of the causes and relationship of attack and mode or causes of resistance to attack of parasitic fungi in flax, cereals, and associated crops. (A) N. D.

Methods of studying mineral nutrition in green plants. N. Y. Cornell.

The salt requirements of representative agricultural plants.  
Relation between pigment content, active photosynthetic area, and dry plant substance produced by corn grown in sand culture.  
Relation between calcium, nitrogen and protein metabolism in the soy bean plant. (A) N. J.

Studies in plant metabolism and growth.--Salt nutrition. Minn.

Determination of the salt tolerance of various plants when grown in sand, loam, and clay soils. Hawaii.

A study of the relation of the concentration of nutrient solutions to the growth of the barley plant in sand and water cultures.  
The relation of solution to absorption and forms of combination of important elements. (A) Calif.

Absorption and localization of aluminum in plants. (A) R. I.

The tolerance of plants to aluminum. (A) R. I.

Relation of chlorine to plant growth. Wis.

The chemical and physico-chemical properties of plant tissue fluids. Chloride and sulphate content of expressed plant tissue fluids. Minn.

Study of ammonium sulphate in relation to plant growth.  
Relative rates of absorption of  $\text{NO}_3$  ions and  $\text{NH}_4$  ions by plants. (A) N. J.

Availability and efficiency of various soluble and insoluble iron compounds in relation to plant production. The adjustment of the iron supply to the requirements of plants in solution cultures. (A) N. J.

Occurrence and distribution of manganese in plants. Effect of manganese on the growth of plants and the development of their seeds. (A) Ky.

BOTANY--Plant Nutrition. (Cont.)

Effect of manganese, arsenic, copper, zinc, nickel, cobalt, cadmium, antimony, and titanium on the growth of plants and the development of their seeds. (A) Ky.

The influence of nitrogen and carbohydrate content of cuttings upon the production of roots. Mont.

Functions of nitrogen, potash, and phosphoric acid in the production of the peach. (A) Del.

Studies on the nutrition of plants as affected by nitrogen and sulphur and by salts. (Berkeley Substation) Calif.

Function of sulphur as a plant food. (A) Wash.

The relation of sulphur and sulphur compounds to cell structure. (A) Md.

Influence of form and amount of sulphur on growth and development of seed and of sulphur-loving plants. Wis.

The relation of H-ion concentration to the growth of plants. Mo.

The influence of H-ion concentration on the injury of plant tissue exposed to low temperatures. N. Y. Cornell.

Optimum pH values for plants.--A study of the growth of plants upon plants whose pH value is under control. Del.

Effect of hydrogen-ion concentration on growth of Lemna minor. N. Y. Cornell.

Plant metabolism and growth.--Effect of CO<sub>2</sub> supply. Minn.

Tree injury from abnormal food supplies. Mont.

Factors which influence the relative growth of roots and tops of plants, and conditions which affect root growths in cuttings. N. Y. Cornell.

A study of the metabolism of roots. Mo.

Fixation of nitrogen by algae. N. Y. Cornell.

Studies in the nutrition of some green algae in pure culture. N. Y. Cornell.

Study of the essential or nonessential character of calcium in green algae. N. Y. Cornell.



BOTANY--Plant Nutrition. (Cont.)

- A study of the factors affecting the germination and growth of chamiza (Artiplex canescens). (A) N. Mex.
- Studies in the metabolism of diseased and healthy corn. Ill.
- Nutrition and plant response of vegetables. Mo.
- Metabolism studies with sweet corn. (A) Md.
- Nutrition of the tomato.--Studies intended to throw light upon conditions within the plant, correlated with certain external treatments and the response of the plants to those treatments. At present confined to nitrogen nutrition. N. Y. Cornell.
- Internal factors involved in plant life from youth to death, including studies of senescence and rejuvenation. (A) Vt.
- Comparative studies on the biochemistry of normal and abnormal plants. (A) Minn.
- Nutrition study of important Kansas crops.--A study of the elemental composition of corn, kafir, wheat, oats, alfalfa, and other important crop plants grown in Kansas. Kans.
- Temperature relation of crop plants.--A study of the maximum and minimum lethal temperatures of crop plants and the optimum temperature for their growth. (P) Kans.
- Optimum soil and climatic conditions for normal growth of individual crops. (P) R. I.
- The relation between the acid and alkaline absorption of crops. (A) R. I.
- Correlation of crop growth with measurements of nutrients and toxic substances. (P) R. I.
- Organic matter as correlated with plant growth. (A) R. I.
- Public service work of the Division of Plant Nutrition. Calif.  
(Berkeley Substation)

Plant Physiology.

- General investigations in plant physiology in relation to horticulture.--A study of the rest period of deciduous fruit trees and of the nitrogen metabolism of the potato tuber during its rest period. (Berkeley and Davis Substations) Calif.

BOTANY--Plant Physiology. (Cont.)

Optimum conditions of light for plant response. (A) Mass.

The relation of light, temperature and atmospheric moisture to the physiological salt balance in nutrient solutions for plants. (A) Md.

Studies in plant metabolism and growth.--Effect of length of insolation period upon growth and reproduction. Minn.

Influence of duration of light on reproduction in *Manhantia*. N. Y. Cornell.

A physiological study of the influence of various types of paper fruit protectors on the growth of plants. Mich.

Effect of shade on fruiting habits and vegetative development of some horticultural plants, fruits, vegetables, and flowers. Md.

Effect of low temperatures on plants.--Varietal differences in frost resistance. Minn.

A study of the physiological factors influencing the production and development of root hairs, with particular reference to the genus *Citrus*. (Riverside Substation) Calif.

Investigation in respiration enzymes.--(1) Oxydo reductase, (2) state of oxidation in tissues. Minn.

Physiological and chemical studies on the milkweed. Iowa.

Respiration of potatoes at low temperatures. N. Y. Cornell.

Dormancy studies on tuber, bulb and root crops, including dormancy studies in the potato and onion.--To determine whether the dormant periods of these crops may be modified. Calif.  
(Davis Substation)

Secretion of enzymes by fungi and influence of carbohydrates on enzyme production. N. Y. Cornell.

Physiology of reproduction. Minn.

Lodging of small grains.--Effect of environmental factors on chemical composition of plants, with special reference to this effect on the carbohydrate-nitrogen relation. (A) Ohio.

Lodging of small grains.--Effect of environmental factors on physical characters of plants, such as diameter of culm, length of culm, number of nodes, number of leaves, etc.; also, effect on moisture content of soil, rate of evaporation as measured by atmometers, wind velocity, etc. (A) Ohio.



BOTANY--Plant Physiology. (Cont.)

Lodging of small grains.--Effect, if any, of environmental factors on the formation of condensation products, with special reference to cell wall material and strengthening substances, such as lignin. (A) Ohio.

Lodging of small grains.--The relation of field conditions and cultural practices to the carbohydrate-nitrogen ratio, particularly to the nitrogen. (A) Ohio.

Lodging of small grains.--Varieties in relation to the carbohydrate-nitrogen ratio, particularly the carbohydrates, by virtue of variation in their stooling characteristic. (A) Ohio.

Lodging of small grains.--The effect of shading with cheesecloth on the carbohydrate-nitrogen ratio, particularly as to the carbohydrate; or, the effect of reduced sunlight on the development of carbohydrates. (A) Ohio.

Systematic Botany.

Natural hybrids in Mimulus. N. Y. Cornell.

Revision of the genus Oxalis. A critical study of our eastern species of wood sorrel. N. Y. Cornell.

Study of the wild asters of the "Paniculatus" group. N. Y. Cornell.

Mushrooms and toadstools. N. Y. State.

Minnesota mushrooms.--A survey of the wild mushrooms occurring in Minnesota. Minn.

Survey of the flora of Newfoundland with preparation of a flora. N. Y. Cornell.

A survey of the flora of the Virgin Islands and the preparation of a herbarium. Virgin Islands.

Miscellaneous.

Vegetative plant propagation, with special reference to cuttings.--To find what causes or permits regeneration of roots, etc. (P) Md.

Plant propagation, with special reference to cuttings of woody plants. Md.

Tolerance of crops for alkali. (A) Idaho.



BOTANY--Miscellaneous. (Cont.)

- Susceptibility, resistance, and phagocytosis in orchid embryos. N. Y. Cornell.
- The conditions of parasitism. N. Y. Cornell.
- Ecological studies in the Cayuga Lake basin.. N. Y. Cornell.
- A study of the economic status of Horned Lake in California. N. Y. Cornell.
- Biological survey.--To make a survey of and collect biological and economic data upon native and introduced plants and animals of the State, their distribution, habits, and agricultural importance. N. Dak.
- The decomposition of chlorophyll in Satsuma orange rinds. (A) Ala.
- Factors influencing the oil content of cotton seed. (A) S. C.
- Effect of straw on plants. N. Y. State.
- A study of canaliculi in plant cells. N. Y. Cornell.
- The utilization of Typha angustifolia and T. latifolia for heat insulation and other commercial products. N. Y. Cornell.
- Anatomy and histology of some plant fossils from the Upper Devonian of New York. N. Y. Cornell.

GENETICS

General Analysis of Inheritance.

- The behaviour of a single gene in development. Conn. Storrs.
- Genetical studies in alfalfa.--Studies from the  $F_2$  plants from the cross Medicago sativa X M. falcata. (A) N. Dak.
- Studies on inheritance in barley. Ill.
- Mendelian studies with corn. N. Y. Cornell.
- Genetic studies of corn, with special reference to linkage. (A) N. Y. Cornell.

GENETICS--General Analysis of Inheritance. (Cont.)

Genetic analysis of maize, including (a) the inheritance of Mendelian characters in maize, (b) the relative frequency of crossing over in microsporogenesis and megasporogenesis, (c) the occurrence and frequency of mutation in the factor of pericarp color in maize, and (d) competition among male gametes in maize. (A) Mo.

Chromosome studies in maize. N. Y. Cornell.

Embryogeny and kernel development in maize. N. Y. Cornell.

Origin of plastids and their relation to other cytoplasmic structures in maize. N. Y. Cornell.

Genetics of cotton. Studies in inheritance of cotton. Fla.

Fundamental study of inheritance in cotton. (A) Texas.

A study of heredity and development in the cotton plant. (A) Miss.

The genotypic constitution of certain varieties of cotton.--To study the mode of inheritance and association of economic qualities in cotton. (A) N. C.

A study of inheritance in black-hulled white kafir. (A) Okla.

A study of inheritance in lettuce. (P) Pa.

A study of inheritance in the tomato. Pa.

Genetic studies in soy beans. Ill.

Correlation of characters in grain. Colo.

Mendelian studies with wheat and oats. N.Y.Cornell.

Studies of inheritance in oats. (A) Pa.

A genetic study of aberrant and false wild types in Kanota oats. (A) Kans.

Studies on the chromosome number of different Hordeum species. (A) Minn.

A study of the chromosome number of various pure lines of wheat. (A) Minn.

Mendelian studies with cabbage. N. Y. Cornell.

The genetic composition of peaches. (A) Mass.

GENETICS--General Analysis of Inheritance.

- Genetic studies with bramble fruits, especially raspberries.  
Determination of factors limiting culture of *Rubus* species  
in the South Atlantic States. (A) N. C.
- Genetic investigations in the genus *Crepis*, the smooth hawks-  
beard. (A) Calif.
- Inheritance in Brahma and Hereford cattle. (A) Texas
- The transmission of sex in dairy cattle. (A) Ill.
- Inheritance studies in poultry. Iowa.
- A genetic study of Rhode Island Red color. Mass.
- Statistical study of heredity of Rhode Island Red breed of poultry.  
(P) Mass.
- Studies of inheritance in pigeons. Wis.
- Studies on the genetics of gold fish. N. Y. Cornell.
- Studies of inheritance in Orthoptera. A study of the fundamental laws  
of inheritance in several species of the genus *Paratettix*. (A) Kans.
- The effect of temperature and moisture conditions on inheritance  
in Orthoptera. (A) Kans.

Breeding.

- Methods of selection breeding. Colo.
- A study of the effect of inbreeding in smooth brome grass (*Bromus*  
*inermis*) and alfalfa (*Medicago sativa*). (A) N. Dak.
- Breeding for hardiness in fruits. (A) Minn.
- Line breeding v. outcrossing. (Dairy) W. Va.
- Line breeding v. outcrossing. W. Va.
- Inbreeding.--Effect on vigor, production, and reproduction. Ohio.
- Study of laws governing the breeding of domestic birds. (A) R. I.
- Studies on inbreeding with Rhode Island Red fowls. Effects  
of inbreeding on fowls. (A) Wis.
- Determination of genetic laws governing results in inbreeding  
of poultry. (A) Mass.



GENETICS--Breeding. (Cont.)

A genetic study of inbreeding in fowls (White Leghorns).--(a) Production of homozygous strains for use in future experiments, (b) continued close inbreeding on twelve characteristics, including fecundity, fertility, hatchability, weight and shape of eggs, body size, growth rate, etc., (c) study of the inheritance of traits tested under (b). (A) Conn. Storrs.

Relative influence of sire and dam on the offspring (poultry). Oreg.

Effect of accumulative selection on external characters (poultry).  
N. Y. Cornell.

Studies of effects of inbreeding upon size, age of sexual maturity, litter size, vitality, etc., of guinea pigs. Kans.

Studies of the physiological phases of reproduction in guinea pigs.  
Kans.

Effect of arsenic (Fowler's solution) upon the reproductive powers of the individual and its offspring. (A) Ill.

Hybridization.

Cytological studies of teosinte-maize hybrids. N. Y. Cornell.

Inheritance in a cross of Avena sterilis algeriensis and Avena nuda inermis. Ohio.

The inheritance in root crosses between Sudan grass and Johnson grass.--  
To determine the mode of inheritance of the root systems in crosses between Johnson grass and Sudan grass. (A) Ga.

Sterility of hybrids of Nicotiana. Pa.

Study of the laws of inheritance through hybridization. (A)  
N. Y. Cornell.

Study in the origin of species or the development and improvement by hybridization of the genera Viola and Rubus. (A) Vt.

Inheritance of characters.

Alfalfa--A study of heritable characteristics in pure lines of alfalfa.  
(A) Ariz.

A study of the manner of inheritance of the various economic characters in beans. (A) Ariz.

GENETICS--Inheritance of Characters. (Cont.)

- Inheritance of seed color in hardy alfalfas and sweet clover. (A) Mont.
- Inheritance study in cereals.--A study of the laws of inheritance with reference to specific characters. (A) Wash.
- The inheritance of prominent ear and stalk characters of corn and their relation to yield, namely, (a) shape of ear, (b) length of ear, (c) number of rows per ear, (d) filling of tip, (e) indentation of kernel, (f) height of ear in stalk, (g) height of plant, (h) proportion of grain to cob. Ohio.
- A study of the inheritance of chemical character (especially carbohydrates) in crosses of dent and sweet corn. Iowa.
- A study of the inheritance of fruit characters in cotton. (A) Ark.
- Inheritance of alkaloidal content and other characters in *Datura*. Wis.
- Inheritance of head characters in kafir. (P) Tex.
- Inheritance in grain sorghums. (A) Tex.
- Production and crossbreeding of tobacco.--Inheritance of disease-resistance in tobacco to the root-rot disease caused by *Thielavia*. Wis.
- Inheritance of stem-rust resistance of wheat. (A) N. Dak.
- A study of the inheritance of certain characters in relation to yield and quality in wheat, oats, sweet corn, beans, and apples. (A) Me.
- A study of the inheritance of characters in fruits. Minn.
- Inheritance of characters in tree, vine, and bush fruits. (A) N.Y.State.
- Study of the transmission of characters in *Vitis rotundifolia* hybrids. (A) N. C.
- Inheritance of flower color and flower form in *Phlox drummondii* and of flower color in *Mirabilis jalapa*. Pa.
- Investigation of inheritance of disease resistance in plants. Wis.
- Effect of low temperature on plants.--Inheritance of frost resistance character of crop plants. Minn.
- The study of the inheritance of characters in dairy cattle in a crossbred Guernsey-Holstein herd. Ill.



GENETICS--Inheritance of Characters. (Cont.)

Multiple births in cattle.	Wis.
A study of the inheritance of slope of rump in cattle.	Wis.
Experimental analysis of the heredity factors in determining milk and meat production in cattle. (A)	Wis.
The mode of inheritance of milk production and associated characters in cattle. (A)	Me.
The inheritance and transmission of the character "capacity for fat production".	Mo.
The inheritance of capacity for fat production in dairy cows.	Conn. Storrs.
Inheritance of fleece characters in purebred and crossbred sheep. Breeding sheep for wool production. (A)	Wyo.
Inheritance of the fur qualities of Karakul sheep.	Tex.
A study of the inheritability of wool by market grades.-- To secure data on the market grades of wool produced by different individuals and breeds in the college flock and compare with the grades produced by sires and dams.	N. Dak.
Inheritance of horns and wattles in Toggenburg goats.	Tex.
Inheritance of the ridgling characteristics in goats.	Tex.
Type and inheritance in Angora goats.	Tex.
Inheritance of factors making for rapid and economical gain in Poland China hogs.--To determine if rate and economy of gain are transmissible characters.	Ill.
Inheritance of resistance to hog cholera.--To determine if resistance to hog cholera is inherited and, if so, to study mode of inheritance and to establish an immune strain.	Ill.
Breeding for natural resistance to hog cholera.	Iowa.
Inheritance of certain characters in poultry. (P)	R. I.
Breeding experiments to determine the behavior in inheritance of certain unit characters (poultry).	Ky.



GENETICS--Inheritance of Characters. (Cont.)

Inheritance of egg production.	Kans.
Inheritance of egg production	N. C.
Inheritance of egg production	Oreg.
Study of the inheritance of egg production and associated characters.	Ohio.
Inheritance of egg production in heavy breeds.	N. Y. Cornell.
Mode of inheritance of egg production in Leghorns.	N. Y. Cornell.
Inheritance in egg production.--Data on maturity as indicating productive ability, inheritance of size and color of eggs, and similar characters.	Nebr.
The inheritance of size and color of hens' eggs.	Ohio.
Inheritance of body weight in poultry.	R. I.
Inheritance of egg weight in poultry.	R. I.
The inheritance of weight, color, and texture of shell of eggs in the single-comb White Leghorn.	Idaho.
A study of the genetic factors involved in the hatching of eggs: (a) Breeding, (b) measurement of other characteristics. (A)	Conn. Storrs.
Studies on the inheritance of plumage colors and patterns in poultry: (a) Inheritance of sex-linked plumage characters, (b) linkage between several sex-linked genes for plumage characters, (c) inheritance of other characters. (A)	Conn. Storrs.
Inheritance of eye color in poultry.	Kans.
Inheritance of color in crosses between the various breeds of the domestic turkey.	Mo.
The mode of inheritance and linkage relation of sex-linked and autosomal factors in poultry. (A)	Me.
Inheritance of contrasting characters in White Leghorns and Jersey Black Giants.	Kans.
Genetic studies of resistance of chicks to bacillary white diarrhea. (A)	Ill.

GENETICS--Inheritance of Characters. (Cont.)

A study of the heritability of resistance and susceptibility to infectious abortion. Wis.

Studies of inheritance of defects in guinea pigs. Kans.

Studies of color inheritance in guinea pigs. Kans.

Studies of the inheritance of size in guinea pigs. Kans.

Studies of color inheritance in rats. Kans.

Studies on the hereditability or nonhereditability of the color pattern in Hemiptera. Minn.

Variations and Mutations.

Inheritance of variations induced by difference in nutrition of wheat. N. Y. Cornell.

Variations in common daisy. N. Y. Cornell.

The origin, nature, and inheritance of apparent mutations in certain plants. (Riverside Substation) Calif.

The plant-breeding value of mutation and other types of variation in wild and cultivated plants. (A) N. Y. Cornell.

(See also genetic studies with Corn, p. 76; Cotton, p. 87; Potatoes, p. 118; Wheat p. 159; Apples, p. 168; Sheep and goats, p. 331; Swine, p. 336; Poultry, p. 354.)

SOILS

General Soil Studies.

Soil investigations. (Belle Glade Substation) Fla.

Soil studies, especially regarding conditions and properties of phosphoric acid, potash, and humus, and the nitrifying and other biological properties of soil. (A) Tex.

The immediate and residuary effects of soluble salt on the physical and chemical properties of soils. Mich.

Translocation of soluble salts in soils and its relation to amount and manner of application. Mich.

What soil characters are factors in determining the agronomic value or utilization of land. (P) Conn. State.

SOILS--General Soil Studies. (Cont.)

Investigation of petroleum-saturated soils. Ill.

The abnormality of soils in cylinder and lysimeter experiments.--  
To determine the presence or absence of zinc in cylinders where  
crops have failed.--A comparison of glazed tile and galvanized  
iron cylinders, with and without a coating of asphalt.--The ef-  
fect of surface drainage and the losses of nitrogen and lime. (A) Tenn.

Uniformity tests on soil bins. Ill.

A study of the effect of concrete walls of Hopkins' soil bins upon  
the composition of drainage water. Ill.

Acidity, Soil Reaction, Liming. (See also FERTILIZERS--Lime, p. 46)

A study of the nature and intensity of soil acidity. (A) W. Va.

Soil acidity studies.--To throw more light upon the various phases  
of soil acidity, its nature, its kinds in different types of soil,  
its effect upon various crops, the effect of various fertilizers  
and soil treatments upon soil acidity. Ind.

Study of physical-chemical aspects of soil acidity.--Investigation  
of (a) the relationship of adsorption to the production of soil  
acidity, (b) the effect of soil acidity on the osmotic and other  
physical-chemical properties of soils. (A) Mich.

Phenomena accompanying different degrees of soil acidity. (A) R. I.

Soil acidity and liming. Nebr.

The influence of lime on plant growth and the composition of the  
soil solution, and studies on the nature of soil acidity. (A) Ala.

Relation of limestone to acidity and soil structure. Oreg.

Testing soils for their lime need. Mo.

Effect of limestone on soil acidity and plant nutrition. Oreg.

The lime requirement of soils.--Comparative results of different  
methods for determining lime requirements, and the effect of  
grinding soils upon their lime requirements as determined by  
different methods. Ill.



SOILS--Acidity, Soil Reaction, Liming. (Cont.)

- Lime requirements of an acid soil.--To compare the value of different forms of lime. Md.
- Studies on the calcium content of soils and its relation to acidity and the response of soils to liming. Mo.
- Soil studies.--Study of soil lime requirements.--Methods of determining so-called soil acidity.--Development of simple means of determining soil organic matter content.--The nature of so-called soil acidity. Vt.
- Lime requirements of different soils for leguminous crops and methods of determining available lime. (P) Wis.
- Soil acidity relations to crops and fertilizers as measured by pH and calcium absorption. (A) R. I.
- The behavior of limestone and phosphates in relation to soil acidity, including H-ion concentration studies. Ky.
- Methods of overcoming the deleterious effects of acid soil conditions. (A) R. I.
- A study of the effects of acid phosphate, raw rock phosphate, limestone, organic matter, and other soil treatments upon soil acidity. Ind.
- Aluminum as a factor in acid soils. (A) R. I.
- A study of acid soils of the State. Ark.
- The buffering effect of silica upon calcium and magnesium additions. (P) Tenn.
- A fundamental study of the mechanism of buffer action in soils. (A) Del.
- Hydrogen-ion concentration and the buffer qualities of the soils of Delaware. (A) Del.
- Studies in lime requirements of various soil types found in the State. Del.
- Hydrogen-ion concentration of the most important soil profiles of the southwestern and south-central part of the State. Minn.
- Lime requirements of the soils of New Hampshire. N. H.

SOILS--Acidity, Soil Reaction, Liming. (Cont.)

The liming of Oregon soils.--A study of the chemical, mineralogical, and physical composition of soil types, especially acid soils, either responsive or nonresponsive to liming. (A) Oreg.

An acidity survey of soil types by counties. Oreg.

Alkali.

The natural occurrence of alkali in soil under cultivation. (A) Wyo.

Action of soil alkali.--To determine the effects of organic matter and soil texture on the action of alkali and the changes which occur in alkali salts in the soil. (A) Utah

A study of the chemical, physical, and physiological effects of salts on soils and crops and of methods reclaiming alkali lands. Calif.  
(Riverside Substation)

Soil investigations of moisture movements and alkali accumulations. (P) Wyo.

Reclamation of alkaline lands in the Salt River Valley. Ariz.

Reclamation studies in Idaho soils. (P) Idaho.

Reclaiming alkali soils in the Yellowstone Valley. (Huntley Substation) Mont.

Leaching of drained alkali lands in Imperial Valley.--To work out the best procedure for removing the alkali. Calif.

Gypsum treatment of black alkali at the University Farm. Ariz.

Percolation from alkali soils treated with alum and from those not treated.--Irrigation water and percolation water from all lysimeters analyzed for salts in solution. (Hermiston Substation) Oreg.

Slick spots in soils, their nature and reclamation. (A) Idaho.

Correction of alkali and slick spots.--To find some method of eliminating the slick spots. Idaho.

Soil correction trials.--Crops, fertilizers, and cultural treatment for "white land". Oreg.

Chemical aids to reclamation of alkali soils by drainage. (A) Idaho.

Alkali reclamation project, Yuma Valley Substation. Ariz.

Effect of alkali salts on bacterial activities of soils. (A) Idaho.

Tolerance of crops for alkali. (A) Idaho.



SOILS--Alkali. (Cont.)

Experiments on the relative tolerance of certain crops to alkalinity and high concentration of salts, and a further study of methods of testing alkali soils, with special reference to the correlation between chemical tests and toxicity to plants. Calif.

(Berkeley Substation)

The influence of concomitant soil conditions on the tolerance of crops for black alkali. (A) Ariz.

Alkali survey. (A) Idaho.

Composition of Soils:

Soils. Composition and properties. Tex.

Replaceable bases in Oregon soils. Oreg.

Base exchange in soils. (P) N. J.

The influence of form and derivation of magnesium oxides and carbonates upon carbonation and silication in soils. (A) Tenn.

Single and cumulative additions of calcic and magnesian materials in lysimeters. (P) Tenn.

Active aluminum as influenced by soil treatments. (A) R. I.

Active aluminum of the soil as influenced by manurial treatments, cropping, and seasons. (A) R. I.

An investigation of the changes in the crop-producing power of the physico-chemico-biological properties of soils long under cultivation. Mich.

The effect of long-continued cropping and fertilization upon the chemical and biological properties of the soil of the Morrow and Davenport plats. Ill.

Studies on the movement of lime in various forms, through Hagerstown silt loam soil by means of lysimeters. Va.

The sources of carbon dioxide in fallow and in cropped soils and its relation to soil changes and plant growth. (A) Colo.

Organic Matter in Soils.

Relation of organic matter (humus) of the soil under different systems of soil management to crop production, with special reference to the changes which take place in the plant food content and the physical condition of the soil. (A) Iowa.



SOILS--Organic Matter in Soils. (Cont.)

The nature of the organic matter of calcareous and noncalcareous soils.  
N. Y. Cornell.

Soil organic matter maintenance. (Adams Substation) Wash.

Laboratory study on the maintenance of nitrogen and organic matter in  
the manure and crop rotation experiments. Ky.

Maintenance of organic matter in eastern Washington soils. (A) Wash.

To study the effects of irrigation, rotation, and manure on organic matter  
supply. Oreg.

To determine the value of straw, cover crops, and green manure in  
maintaining organic matter. Oreg.

To determine the organic matter and humus content in Oregon soil types.  
Oreg.

Effect of lime on the decomposition of organic matter in soils.  
(A) Del.

On the mechanism of decomposition of organic matter in the soil  
and the processes contributing to the formation of soil "humus".  
(A) N. J.

Removal v. non-removal of organic matter in soils. Miss.

The effects of different methods of utilization of crop residues  
upon the crop yields and the maintenance of organic matter and  
nitrogen. Ill.

The amount of organic matter necessary under certain conditions.  
(P) R. I.

Soil Erosion and Leaching.

Studies of water absorption, run-off, percolation, composition,  
capillary water movement, and soil erosion under field conditions.  
(A) Mo.

Run-off water losses in relation to crop production. (P) Tex.

Control of erosion. Ill.

Mechanical methods for checking soil washing. Ill.

Soil erosion in Nebraska. Nebr.

SOILS--Soil Fertility. (See also FIELD CROPS--Rotations, p. 131)

- Soil requirements. N.Y.State.
- Fertility test. (P) Miss.
- Fertility plats. W. Va.
- Permanent system of fertility. Ill.
- Permanent fertility studies (Greenville, Nephi) (A) Utah.
- Methods of maintaining soil fertility. N. J.
- Maintenance of fertility.--A study of the effect of reinforcing farm manure with raw rock phosphate in systems of continuous cropping with wheat, corn, oats, and barley; and a 5-yr. rotation consisting of corn, barley, wheat, sweet clover, and flax. N.Dak.
- Maintenance of soil fertility.--A comparison of steamed bone meal, ground raw rock phosphate and acid phosphate on carriers of phosphate in livestock and grain farming districts. N. Dak.
- Experiment in maintaining fertility in the garden: (a) The minimum amount of manure necessary to obtain profitable vegetable crops, (b) to what extent green crops and fertilizers can be substituted for manure, (c) a profitable combination of chemical fertilizers and manure, and (d) the effect of lime upon crop production. N.H.
- Crop rotation and fertility. Okla.
- Crop rotation and fertilizer experiments.--To determine the influence of various rotations maintaining soil fertility. Mo.
- The influence of rotations upon the maintenance of soil fertility. (A) S.Dak.
- To ascertain the effect on soil productivity of continuous cropping when the organic matter of the soil is maintained by means of seeded crops. N.Y.Cornell.
- Study of the residual effects upon the soil, and of the utilization by rotation crops of the commercial fertilizers, manure and lime. (A) Pa.
- The rate of accumulation and cost of nitrogen and carbon in soils under different systems of green manuring and cropping.--To determine the effect of different systems of green manuring and cropping upon the accumulation and loss of nitrogen and carbon in the soil. Mo.



SOILS--Soil Fertility. (Cont.)

- Soil fertility studies. Effects of certain crops on soil fertility. Plats planted to various crops and combinations of crops, followed by wheat as an indicator of the fertility. Miss.
- Fertility investigations; the effects of various amounts of fertilizers applied at different times in the rotation on soil conditions and plant growth. Iowa.
- Fertility investigations; the effect of various amounts of rock phosphate with green manures and farm manures on soil condition and crop growth. Iowa.
- Soil fertility. A study of the residual effect of varying amounts of nitrogen, phosphoric acid, and potash in a 2-year rotation of cotton, corn, and legumes. La.
- Soil rejuvenation and fertility study. The use of green manure crops and the effect of certain mineral fertilizers. N.H.
- Use of legumes in building up soil fertility. (Sandpoint Substation) Idaho.
- The influence of legume and non-legume crops in maintaining soil fertility. N.J.
- The relative effect of crops on soil fertility. (A) R.I.
- Soil fertility as measured by different crops. (P) R.I.
- Degree of fertility after withholding individually the carriers of fertilizer nutrients and lime. R.I.
- Permanent maintenance of soil fertility without manure. R.I.
- Availability and utilization of plant nutrients in soils under different methods of treatment. (A) N.Y. Cornell.
- Soil investigations.--To determine the needs of the soils of this area. (Caldwell Substation) Idaho.
- Fertility test.--To determine the effect of lime, manure, and commercial fertilizers on the light colored sandy soils of northern Indiana. Ind.
- Fertility test.--To determine the effect of lime, manure, and commercial fertilizers on Crosby silt loam. Ind.
- Fertility test.--To determine the effect of lime, manure, crop residues, and commercial fertilizers on the light-colored "slash" land of southeastern Indiana. Ind.



SOILS--Soil Fertility. (Cont.)

- Soil fertility test.--To determine the effect of lime, phosphorus, potassium, nitrogen, and manure on the fertility of the acid peaty sand soil of the Kankakee Valley. Ind.
- Soil fertility study.--To determine the needs of Miami silt loam for the different fertilizer constituents, lime, manure, and other organic matter. Ind.
- Complete fertility test of a typical Miami silt loam. Ind.
- To determine the plant food requirements of the "yellow clay" soil (Volusia silt loam). Ind.
- A study of the lime, fertilizer, and organic matter needs of the upland, yellowish-brown silt loam soil of south-central Indiana. Ind.
- To demonstrate the value of lime, legumes, and phosphorus in soil improvement and their relative value on a typical rolling upland soil of southwestern Indiana. Ind.
- A soil fertility<sup>study</sup> to determine if it is profitable, in this soil type, to use acid and raw rock phosphates with manure. Ind.
- A comparison of grain farming with stock farming as regards the maintenance of soil fertility. Ind.
- Soil fertility studies on south soil test. Mass.
- A study of varietal adaptation and fertilizer requirements on Red River Valley soils. The effect of commercial fertilizers on crop growth. (Northwest Substation, Crookston) Minn.
- Physical and chemical characteristics of North Carolina soil types in relation to soil fertility. (A) N. C.
- Maintenance of soil fertility.--To determine the best methods of maintaining or increasing the productive capacity of the Fargo clay of the Red River Valley. N.Dak.
- Field and pot tests to determine the fertilizer requirements of Dekalb soils. Pa.
- Field experiment on Volusia soil to determine the lime and fertilizer requirements. Pa.
- Field experiment on Westmoreland soil.--To determine the lime and fertilizer requirement. Pa.

SOILS--Soil Fertility. (Cont.)

- Soil fertility investigations in western Washington. Wash.
- Effect of different methods and classes of farming on soil fertility. Wis.
- To test various mixtures of fertilizer salts on different courses in a crop rotation as means of maintaining soil productivity. N.Y. Cornell.
- Plant food losses from the soil due to different crops. Mont.
- Effects of various factors upon the loss in drainage water of elements necessary to plant growth. Ill.
- A study of the underlying factors influencing soil fertility as evidenced by the chemical composition of the soil solution. Calif.
- Sulphur in plants and soils and its significance to permanent soil fertility, also determination of the best sulphur compound for correcting sulphur deficiency in soils. (A) Ky.
- Plant food requirements on typical Arkansas soils. Ark.
- Study of infertile soils. Mont.
- Reclamation experiment to determine best method of improving worn-out gullied soils. (Charlotte Courthouse Substation) Va.
- Causes of unproductiveness of recently cleared coniferous timber soils, relation of toxicity thereto and corrective measures. (A) Idaho.
- Colloidal behavior of soil and soil fertility. (P) N.J.
- Soil fertility as influenced by microorganisms in relation to the presence and disappearance of organic matter. (A) Mass.
- Rotation, fertilizer, and soil improvement. Tex.

Soil Flora.

- Soil organisms, their functions, and their relation to the ammonification of farm manures. (A) N.Y. State.
- Factors influencing the bacterial activities of the soil. (A) Utah.
- Soil flora in relation to crop production. Del.
- Bacterial activities and crop production. Iowa.
- Relation of biological activities in the soil in crop production as affected by definite agricultural practices. Wash.



SOILS--Soil Flora. (Cont.)

Effects of different soil treatments, long continued, upon bacterial activity in the soil.		Mo.
Some biological changes brought about in certain soils by different cropping, fertilizers, liming, and manurial treatments.	(A)	Del.
Microbiological study of certain Oregon soils having an acid reaction.	(A)	Oreg.
Soil microbiology.--To determine the role played by microorganisms in the decomposition of peat.	(A)	Mich.
Microorganisms concerned in the oxidation of sulphur and its compounds in the soil.	(A)	N. J.
Soil fungi and soil actinomycetes.	(A)	N. J.
Bacteriological effect of green manures on a typical Mississippi soil.	(A)	Miss.
The relation of microorganisms to the decomposition of organic compounds toxic to the growth of higher plants.	(A)	Ala.
Effects of wood and forest products on bacteriological activities in soil: (a) Ammonification and nitrification, (b) nitrogen fixation.	(A)	Idaho.
Treatment of soils as affecting bacteria.		Iowa.
The effect of commercial fertilizers on bacterial activities.		Iowa.
Effect of alkali salts on bacteriological activities of soils.	(A)	Idaho.
Effect of soil acidity on bacteria associated with the nitrogen cycle.	(A)	Wis.
Growth of bacteria in sterilized soil, both planted and unplanted, when inoculated with pure cultures of certain bacteria capable of producing transformations of nitrogen.		N.Y.Cornell.
A study of calcium sulphate and biological reactions in soil.		N.Y.Cornell.
Surface tension and bacterial growth.		Idaho.
The isolation and study of nitrifying bacteria.		Idaho.
A study of the influence of the absolute reaction of the soil solution upon the growth and activity of Azotobacter in soils.	(A)	Kans.



SOILS--Soil Flora. (Cont.)

- Azofication--effect of reaction upon the growth of Azotobacter. Pa.
- Studies on the longevity of B. radicicola in the soil. After the crop is removed how long do the bacteria live in the soil and retain the ability to inoculate the next crops? Mo.
- Factors which accelerate or retard the action of microorganisms, particularly as affecting the accumulation of plant food and of disease-infected or of disease-producing residues in the soil. (A) N.Dak.
- Soil bacteriological investigation methods. Iowa.
- Critical study of soil microbiological methods and of principles upon which they are based. (A) N.J.

Soil Management.

- Experiments to determine the best systems of soil management for the most important soil types in Missouri.--To determine the need of lime, phosphorus, potash, and nitrogen as well as the return to be secured, the use of green manures, farm manures, in some cases drainage and certain cultural methods on the more important soil types in Missouri. Mo.
- Soil management studies, including (a) moisture and structural relationships of the soil, (b) fertilizer needs of representative soils, and (c) immediate and residuary effects of different forms of lime and phosphorus. Mich.
- Soil management and fertilizer investigations. The upbuilding of fertility of the more important soil types. Md.
- Soil management experiments.--To learn the best method of managing soils and maintaining fertility under Alaskan conditions. (Fairbanks Substation) Alaska.
- Management of sandy soils. Wis.
- Management of marsh soils. Wis.
- Management of heavy clay soils. Wis.
- Management of irrigated soils. Wash.
- Management of new soils.--To determine the most advisable treatment for newly plowed native grass land. Guam.
- Tests of certain methods of soil management applied to Ontario loam and Volusia silt loam at Churchville, Alfred, and Virgil. N.Y. Cornell.
- Tillage experiments. Different methods of handling the summer fallow for wheat production. (Moro Substation) Oreg.

SOILS--Soil Moisture.

Fundamental soil moisture constants.	(A)	Utah.
Moisture, soil, and crop relations.		Utah.
Soil moisture problems. (Adams Substation)		Wash.
Soil moisture and root development studies.		Ariz.
Movement of water in soils.	(A)	Minn.
Factors affecting distribution of water in soils. (Berkeley Substation)		Calif.
A study of water relations, such as movement of soil moisture, due to capillarity and gravity, percolation and distribution, moisture equilibrium, moisture content of soils, and wilting point. (Irrigation Substation)		Wash.
Soil investigations of moisture movements and alkali accumulations.	(P)	Wyo.
Systematic soil moisture studies under humid, dry farming, and irrigated conditions, to determine value of (a) different tillage treatments, (b) fertilizers, and (c) manure increasing the efficiency of moisture made available.		Oreg.
The effect of the size of container and such external physical factors as temperature and relative humidity upon the rise and rate of rise of capillary water through soil columns. (Davis Substation)		Calif.
To determine the amount and rate of use of soil moisture by the small grain crops and corn, the depth of penetration and use, and the amount of water stored on fallow. (Dickinson Substation)		N.Dak.
Water requirement studies.		Oreg.
Relation of soil moisture, structural development and yield of small grain.	(A)	Colo.
Soil moisture and nitrate investigations.--To determine what effect various soil tillage methods have on accumulation of nitrate nitrogen and moisture in soil. (Moro Substation)		Oreg.
Percolation for different soils and crops with approximately uniform applications of water. (Hermiston Substation)		Oreg.
Lysimeter investigations. Percolation from same soil with some amounts of water with different cropping systems. (Hermiston Substation)		Oreg.



SOILS--Soil Moisture. (Cont.)

Determination of critical moisture points for different soils.--

To determine and measure any difference in the wilting point and time of irrigation for different crops and the factors affecting the same.

Oreg.

A study of the moisture relations of California soils, with special effects on means of measuring and expressing critical contents of soil moisture. (Berkeley Substation)

Calif.

Moisture conservation in northern Montana. (North Montana Substation)

Mont.

Glacial water levels in Tompkins and Cayuga Counties.

N.Y. Cornell.

Principles of soil moisture in relation to irrigation. (Davis Substation)

Calif.

Tank experiments on soil moisture.

Utah.

A study of soil solution as governed by H-ion.--Studies of the effect of various ions and combinations of ions upon the leachability of several ions in the soil.

Kans.

Evaporation from water surface and moist soils.

Colo.

Amount and condition of drainage water from soils, with special reference to the effect of liming and cropping.

N.Y. Cornell.

Soil Nitrogen.

A study of the nitrogen economy of the soil.

(A)

Tenn.

A study of the soil nitrogen of a peach orchard.

N.Y. Cornell.

Effect of nitrogenous fertilizers on nitrogen loss from the limed and unlimed soil.

(A)

Tenn.

The utilization of nitrogen in the presence of varying amounts of phosphoric acid and potash. (Cylinder experiment)

N.J.

An investigation of the accumulation of depletion of nitrogen and carbon in soils under different systems of soil treatment and management.

(P)

Mo.

Study of nitrogen fixation in the presence of or as a result of growth of legumes v. non-legumes under certain defined agronomic conditions.

(A)

Mass.



SOILS--Soil Nitrogen. (Cont.)

- The effect of crop rotation, crop removals, and soil treatment upon the total nitrogen content of the soil. Ill.
- Relation of weather, soil condition, and cultural practices to nitrification in Nebraska soils. (P) Nebr.
- A study of the nitrification and denitrification processes in Louisiana soils as affected specifically by cane culture, with special reference to the effect of cane trash upon denitrification especially under conditions of excessive moisture. (A) La.
- To study effect of organic matter on bacterial activity and accumulation of nitrates in soils. Oreg.
- Nitrate production in a soil as affected by the crop and cultivation. Mo.
- Nitrate content of soils as influenced by crops, fertilizers, lime, green manures, and weather, with the purpose to maintain optimum amounts. (P) R.I.
- Nitrates as influenced by soil treatments. (P) R.I.
- Nitrate content of soils differently cropped and fertilized. (A) R.I.
- Study of conditions which favor the development and control of nitrates in the soil. (A) Mont.
- Formation of nitrates in soil during and after the growth of timothy, clover, corn, and oats, as determined by analysis of the leachings. N.Y.Cornell.
- Effect of different green manures on soil nitrates. R.I.
- The effect of different cover crops or green manures when plowed under, in the formation of nitrates in soils. N.Y.Cornell.
- Soil moisture and nitrate investigations.--To determine what effect various soil tillage methods have on accumulation of nitrate nitrogen and moisture in soil. (Moro Substation) Oreg.
- The control of excessive soil nitrates in the Arkansas Valley. (P) Colo.
- Studies of the presence, character, and possible source of nitrogen in the waters and soils of Arizona as related to leguminous vegetation. (A) Ariz.
- Study of nitrogen balance in legume and nonlegume rotations. N.Y.State.

SOILS--Soil Nitrogen. (Cont.)

To measure the nitrogen balance in soil under alfalfa and timothy grown continuously and under certain crop rotations. N.Y. Cornell.

Influence of aluminum on nitrification and phosphorus assimilation. (A) R.I.

Determination of fixation of nitrogen by nonsymbiotic bacteria. Ky.

Organic nitrogenous compounds of peat soils, the effect of lime on muck and peat soils. Study of the quantitative relationship between glutaminic and aspartic acids and the acid amide nitrogen and isolation of individual nitrogenous compounds. (A) Mich.

The quantities, forms, and sources of nitrogen and sulphur contained in the rainfall at Ithaca. N.Y. Cornell.

The effects upon the maintenance of nitrogen for crop growth of numerous factors, including proportion of legumes in rotation, methods of handling crop residues, activity of nonsymbiotic nitrogen-fixing organisms, and kind of legumes. Ill.

Soil Phosphorus.

Phosphorus relations of soils and plants. (A) Wis.

Comparative solubility of soil phosphorus after treatment with rock and acid phosphates. Ill.

A study of the influence of different methods of farming on the phosphorus content of the soil, and of the conditions which influence the availability of the phosphorus in crops. (A) Wis.

The amount of active phosphorus required for optimum growth of crops. (P) R.I.

Active phosphorus and potassium (in soils). (P) R.I.

Soil Physics.

Soil dynamics. Ala.

A study of the hourly and daily fluctuations in the temperature of the soil. Records at different depths under bare and cropped surfaces. Md.

To determine the soil temperatures at the Michigan agricultural college temperature station throughout a series of years. Mich.

A study of soil colloids. (A) Mich.

Study of colloidal swelling of dry soil when wetted. (A) Ariz.

An investigation of the character of the colloids of Missouri clay soils. (A) Mo.

Volume weight of field soils. Ill.



## SOILS--Soil Potash.

- Potassium-bearing minerals as a source of potassium for plants. Ill.
- A study of the availability of soil potash with the object of developing a system of diagnosis for the soils of the State. (A) Mass.
- An investigation of the factors affecting the availability of the potassium compounds of the soil. Md.
- Cause of apparent low content of available potash in soils giving feeble response to potash fertilizers as shown by the usual analytical methods. (A) Ga.
- Active phosphorus and potassium (in soils). (P) R.I.

## Soil Sterilization.

- The effect of heating soils on germination and plant growth and the development of disease in heated soils which have become reinfested. Wis.

## Soil Sulphur.

- Sulphur in plants and soils and its significance to permanent soil fertility; also determination of the best sulphur compound for correcting sulphur deficiency in soil. (A) Ky.
- To determine the effect of sulphur composted in arid and humid soil at different rates. Oreg.
- Sulfofication in soils. Iowa.
- Microorganisms concerned in the oxidation of sulphur and its compounds in the soil. (A) N.J.
- To study the losses and gains in soil sulphur, from rainfall and drainage. Oreg.
- Influence of lime and magnesia on conservation of soil sulphur. (A) Tenn.
- To determine the ultimate effect of long continued use of sulphur on soil acidity and fertility, used since 1912 and 1915. Oreg.
- To determine the effects of sulphur in the soil solution. Oreg.
- The quantities, forms, and sources of nitrogen and sulphur contained in the rainfall at Ithaca. N.Y.Cornell.
- Sulphur in acid soils of western Oregon.--To determine the sulphur content of the predominating soil types of the Willamette Valley and the amount of sulphur they receive annually in the rainfall. Oreg.



SOILS--Soil Surveys.

Soil survey of the Auburn area.	Calif.
Soil survey of the Bishop area.	Calif.
Soil survey of the Chico area.	Calif.
Soil survey of the Coachella Valley area.	Calif.
Soil survey of the Gilroy area.	Calif.
Soil survey of the Hollister area.	Calif.
Soil survey of the King City area.	Calif.
Soil survey of Lancaster area.	Calif.
Soil survey of the Palo Verde Valley area.	Calif.
Soil survey of the Salinas area.	Calif.
Soil survey.--A detailed survey of a designated area each season, as funds permit.	Idaho.
Soil survey. (Analysis.)	Ill.
State soil survey. (Mapping.)	Ill.
Soil survey of Indiana.--To determine and accurately map the various soil types of the States, including the making of chemical analyses and a detailed description of each soil type, together with a discussion of the fundamental methods practiced and the general agricultural adaptation of the particular soil type.	Ind.
Soil survey of Iowa.	Iowa.
Systematic study of Michigan's soils, including soil classification, mapping, composition, topography, erosion, present state of productivity, land utilization, and recommendations for soil improvement.	Mich.
Soil survey.	Minn.
The determination and mapping of Missouri soil types (soil survey.)	Mo.
Soil survey studies.	Mont.
Detailed soil survey (soil survey and soil maps).	Mont.
Reconnaissance soil survey.	Mont.
Soil survey.	Oreg.
Soil survey.	Tex.

SOILS--Soil Surveys.

- Soil survey. Utah.
- Soils of the low-lime area. Minn.
- Chemical composition of North Carolina soils.--To determine the chemical composition of soil survey samples and the relation between soil type and chemical composition. N.C.
- The chemical analysis of North Dakota soils.--To analyze all soil samples submitted by the director of the soil survey. N.Dak.

Soil Types.

- Soil type fertilizer experiments. (Triangular method). N.C.
- Soil type fertilizer experiments on outlying fields other than those of the branch stations. N.C.
- Peat soils. Minn.
- The peat soils of Idaho. Idaho.
- Subsiding and compacting of peat lands.--To determine the degree and rate of subsidence of the peat lands of the Sacramento-San Joaquin Delta. Calif.
- Organic nitrogenous compounds of peat soils, the effect of lime on muck and peat soils. Study of the quantitative relationship between glutaminic and aspartic acids and the acid amide nitrogen and isolation of individual nitrogenous compounds.(A) Mich.
- Muck soil studies.--To determine the factors limiting crop production on the muck soils of eastern North Carolina and to develop better methods of management. N.C.
- Unproductive muck.--Its cause and correction. N.Y.Cornell.
- Field and laboratory investigations with muck soils. Mich.
- Effect of different cultural methods upon production on the muck soils of the black land section. N.C.
- Experiments on Muskeg soils. Liming native Muskeg.--To study the effect of limestone and quicklime upon the native vegetation of Muskeg land and to determine the value of such application as a factor in preparing Muskeg land for cultivation. (North Central Substation, Grand Rapids) Minn.
- Timber soil investigations. Idaho.



SOILS--Soil Types. (Cont.)

An investigation of methods of improving heavy clay soils. (P) Mo.

Studies of the tight clay layer in the soils of the level prairies of Missouri.--To determine the materials and conditions responsible for the tight clay layer which underlies the level prairies, particularly in the northeastern and southwestern portions of Missouri and to find, if possible, some means of lessening its influence upon the productivity of these soils. Mo.

A study of the effect of lime and organic matter on the impervious Kirkland upland soil. (A) Okla.

Soils of the red drift. Minn.

Soil correction trials. Crops, fertilizers, and cultural treatment for "black sticky land." Oreg.

Laboratory and greenhouse study of "tight clay" subsoil. Ill.

Sandy soils. Minn.

Fixing of shifting sands. Mich.

"Push" soil investigations. Iowa.

Physical studies of rice lands.--A study of the character of the soils used for rice production, with particular reference to any changes in physical condition that might be due to continual submergence incident to rice culture. Calif.

Plant composition as influenced by variations in soil type. (A) Wash.

To ascertain whether the soil type, as now distinguished, is an index to the fertilizer needs of a soil. N.Y.Cornell.

To ascertain whether the composition of a soil type, as now classified, is fairly uniform and characteristic. N.Y.Cornell.

Parallelisms between glacial and loessial soils of southeastern Nebraska. Nebr.

A study of the utilization of the soils of the Gilroy soil survey area. Calif.

A study of the utilization of the soils of the San Fernando Valley. Calif.

Pot culture studies of the fertilizer requirements of different soil types. Md.

Soil management and fertilizer investigations. The upbuilding of fertility of the more important soil types. Md.

The economic significance of soil type. (P) Conn.Storrs.

Subgrade soils of Colorado. Colo.

SOILS--Tillage as Related to Fertility and Productivity.

Cultural methods.	Utah.
Methods of cultivation.	Wyo.
Effect of cultivation.	Ark.
Tillage methods and moisture conservation. (Judith Basin Substation)	Mont.
The principles of intertillage. A study of the effects of cultivation on soil moisture, root development, and yields of vegetables.	N.Y. Cornell.
Time and method of intertillage.	Tex.
Soil tilth.	Nebr.
Tillage experiments. Different methods and time of plowing. (Moro and Corvallis Substations)	Oreg.
A study of the effect of stirring soil on moisture content, oxidation, nitrification, and crop yield. (A)	S. C.
Time and method of seed bed preparation.	Tex.
Depth of seed bed preparation for cultivated crops.	Ind.
Field crop investigation under both dry farming and irrigation. Tillage experiments with wheat, oats, barley, rye, field peas, corn, alfalfa, sunflowers, grasses, potatoes, and other minor crops. (Burns Substation)	Oreg.
Furrow drill v. ordinary drill in northern Montana. (North Montana Substation)	Mont.
A study of methods of measuring the degree of pulverization of soil. (Davis Substation)	Calif.
Fallow experiments with cane land.--To conserve soil moisture and to determine the effects of this practice upon the yield of cane and the production of sugar.	Virgin Islands.
Summer fallow experiment (at Akron).	Colo.
Orchard tillage experiments.	N.Y. Cornell.
The paper mulch.--A study of the effect of covering the surface of the soil with a layer of paper. (Berkeley Substation)	Calif.



FERTILIZERS

(See also SOILS--Soil Fertility, p. 27 and BOTANY--Plant Nutrition, p. 8)

Fertilizer Experiments, General. (See also FIELD CROPS--specific crops  
and Rotations)

Fertilizer experiments.	Minn.
Fertilizer experiments. (Delta, Holly Springs, and Raymond Substations)	Miss.
Fertilizer experiments. (Burns Substation)	Oreg.
Fertilizer experiments.	Pa.
Cooperative fertilizer experiments.	Ark.
Fertilizer experiments (cooperative). (Southeast Substation, Waseca)	Minn.
Cooperative fertilizer tests. (Holly Springs Substation)	Miss.
Cooperative fertilizer experiments.	Nebr.
General comparative fertilizer tests.	S.C.
General comparative fertilizer tests on the various soil types in South Carolina conducted in cooperation with farmers.	S.C.
General comparative fertilizer tests at the Pee Dee and Coast Stations with corn, cotton, and small grain.	S.C.
Field fertilizer experiments. (Everglades Substation, Belle Glade)	Fla.
Renewed fertilizer experiments.	Ky.
Fertilizer plat studies. Fertility studies on 104 one-tenth acre plats at Geneva.	N.Y. State.
Tests with commercial fertilizers.	Idaho.
Fertilizer ratio experiments (triangle experiment).	N.J.
Fertilizer experiments on the chief soil types of the State.	Oreg.
Rotation, fertilizer, and soil improvement.	Tex.
Fertilizers. The results farmers may expect from the long-continued use of the more common commercial fertilizers, particularly acid phosphate.	Ohio.

FERTILIZERS--Fertilizer Experiments. (Cont.)

A study of the influence of concentrated fertilizers (8-16-8 and 16-18-16) on germination, growth, and yield.	N.J.
A study of the effects of applying different amounts of fertilizer at different times.	N.C.
Liming and fertilizer experiments. (Columbia Substation)	Tenn.
Commercial fertilizers v. stable manures.	Ohio.
Fertilizer v. manure for fertility maintenance.	R.I.
Tests of commercial fertilizers with and without manure. (Astoria Substation)	Oreg.
Fertilizer as a supplement to manure and green manure.	R.I.
Fertilizer in nonmanure rotations.	R.I.
Test of theoretical amount of fertilizer compared with popular formulas.	S.C.
The comparative profits of equal investments in phosphorus, in phosphorus and potassium, and in phosphorus, potassium, and nitrogen.	Ohio
Fertilizer rotation experiments.	Ala.
Crop rotation and fertilizer studies.--To determine the relative merits of several different crop rotations and to compare different systems of fertilization, including commercial fertilizers and farm manures.	Ind.
Crop rotation and soil fertility experiments. Tests of crop rotations, commercial fertilizers, and manure.	Kans.
Crop experiments.--To make comparative studies of various rotations and fertilizer applications in regard to their effect upon crop and soil.	Nebr.
Combination fertilizer and rotation experiments.	Ark.
Comparison of different depths of tillage and of manure, lime, and phosphorus in securing larger and better field crops.	S.Dak.
The influence of fertilizers, on the soil where vegetation is undisturbed as compared with their influence under a five-year rotation of corn, oats, wheat, and timothy.	N.J.



FERTILIZERS--Fertilizer Experiments. (Cont.)

- Influence of certain fertilizer treatments on (a) growth, (b) carbohydrate production, and (c) nitrogen production. Mich.
- Pot culture studies of the fertilizer requirements of different soil types. Md.
- Pot experiments with commercial fertilizers. The percolation water from the pots being analyzed. (Hermiston Substation) Oreg.
- Study of residual effects of fertilizers. Mass.
- Top-dressing crops with fertilizers. (Staunton Substation) Va.
- Ecological study of the effect of fertilizers on plants. Ohio.
- Fertilizer and soil studies in the greenhouse. Ohio.
- The relative response of crops to carriers of fertilizer materials. (P) R.I.
- The use of gypsum, manure, rock phosphate, acid phosphate, sulphate of potash, and the last two in combination and the use of lime with all of the above combinations on alfalfa. (West Central Substation, Morris) Minn.
- The use of standard carriers of nitrogen, phosphorus, and potassium singly, in combination of two elements, and the three together in different proportions and amounts, in various crop rotations and in continuous culture. Ohio.
- Comparisons of different carriers of nitrogen, phosphorus, and potassium. Ohio.
- A study of the availability of urea when used in a high-grade fertilizer in soil varying in mechanical composition. N.J.

Green Manures.

- Experiments with green manure crops. Del.
- Experiment to determine best green manure crops for this section. (Martinsville Substation) Va.
- Cover crop and green manure studies. Fla.
- Effect of green manuring on the soil. (A) Va.
- Green manure v. stable manure. R. I.

FERTILIZERS—Green Manures. (Cont.)

- Comparative value of barnyard and green manures. (Hermiston Substation) Oreg.
- Fertilizer as a supplement to manure and green manure. R.I.
- Barnyard and green manures in the Judith Basin crop rotation. (Judith Basin Substation) Mont.
- Barnyard and green manures in northern Montana crop rotations. (North Montana Substation) Mont.
- Barnyard and green manures in the Yellowstone Valley. (Huntley Substation) Mont.
- Experiments in forage, green manure, and winter cover crops.-- To determine the best use of rye, winter vetch, sweet clover, the common clovers, and alfalfa for forage, green manure; and winter cover crop purposes. Md.
- Studies in the utilization of crop residues. Ill.
- To learn the method of reducing grain straw and like refuse to warm manure. Oreg.
- Studies of green manure crops for maintaining humus in vegetable production.--To determine the best green manure crops to plant under various cropping systems and at different times. N.Y.Cornell.
- The fertility value of legumes at various stages of growth. Ill.
- Winter legumes as cover crops and green manures preceding human food crops. R.I.
- The inoculating value of small quantities of manure in connection with the growing of a legume and a nonlegume green manure crop. N.J.
- Green manuring experiments, including crimson clover, hairy vetch, rye, red clover, and alsike clover. Md.
- Green manuring experiments, including cowpeas, soy beans, and buckwheat. Md.
- Determining sweet clover plants per acre, their average height and amount of dry matter per acre when spring plowed as a green manure crop. Ill.
- Green manuring experiments with cowpeas to determine the effect of cowpeas when turned under on nonlegumes immediately following. (Jackson Substation) Tenn.



FERTILIZERS--Green Manures. (Cont.)

- Oats, rye, and timothy as green manure for late celery. R.I.
- What is the value of straw and of vetch and oats green manure as compared to manure. Oreg.
- A study of the fertilizing value of cornstalks on brown silt loam. Ill.
- Effect of different green manures on soil nitrates. R.I.
- Comparative growth of green manure crops after the middle of July. R.I.
- Bacteriological effect of green manures on a typical Mississippi soil. (A) Miss.
- The soil fertility value of cornstalks plowed under v. left to decay on the surface. Ind.

Lime. (See also SOILS--Acidity, soil reaction, liming, p. 22.)

- Liming and fertilizer experiments. (Columbia Substation) Tenn.
- Relation of limestone to type of crop. Oreg.
- Relative influence of lime on different crops. R.I.
- The influence of lime on plant growth and the composition of the soil solution, and studies on the nature of soil acidity. (A) Ala.
- Calcium compounds: Forms, amounts, and when best applied. Ohio.
- A comparison of different forms of lime. Tenn.
- Forms of lime.--To study the effect of various forms of lime on yield, both as to their immediate and accumulative effect. Ark.
- A field comparison of various forms of lime, also rate of liming experiments. Tenn.
- Liming experiment.--To test the relative merits of various liming materials of different degrees of fineness and at different rates per acre. (Pinney-Purdue and Jennings Co. Substations) Ind.
- Comparisons of different amounts of burnt lime and burnt dolomite, with limestone and dolomite separates. Tenn.
- Lime experiments.--To determine the best kinds and amounts of lime to use on the major soil types of the State. N.C.
- The effect of different kinds of lime. R.I.

FERTILIZERS--Lime. (Cont.)

- A study of the efficiency of small amounts of lime and a comparison of lime in quick and hydrated forms, marl and ground limestone. Wis.
- Lime studies. The use of lime in a standard crop rotation for this region, different forms of lime, effects of the fineness of grinding on value of limestone. Va.
- Effect of liming on soil losses of basic elements, carbon dioxide and nitrogen. (P) Tenn.
- Rate-of-liming experiments. (Crossville Substation) Tenn.
- Rate-of-liming experiment. (Martinsville and Holland Substations) Va.
- Rate-of-liming experiments with (a) burnt lime and (b) ground limestone. A complete series for both red clover and alfalfa. (Murfreesboro Substation) Tenn.
- Lime trials with different rates and forms on six leading acid soil types in western Oregon. Oreg.
- Light application of limestone compared to heavy application. Ill.
- Light application of limestone compared with heavy application on land which has received no lime since 1902. Ill.
- The influence of lime on plant growth and the composition of the soil solution, and studies on the nature of soil acidity. (A) Ala.
- Limestone studies: (a) Effect of fineness of limestone upon soil acidity and crop growth, (b) comparative effects upon soil acidity and crop growth of different forms of limestone and of limestone of different geological origin. Ill.
- Field test of the value of limestone of different degrees of fineness. Pa.
- Comparison of different degrees of fineness, different amounts, and different forms of limestone and burnt lime. Ill.
- Comparison of the relative efficiency of limestone particles of different degrees of fineness. N.Y.Cornell.
- Residual influence of a single application of limestone. Ill.
- Effect of lime on the availability of phosphorus in different carriers. R.I.
- The use of different quantities of ground lime in the growing of alfalfa. N.J.
- Calcium v. magnesium limestone. Md.



FERTILIZERS--Lime. (Cont.)

Calcium v. magnesium compounds.	Ohio.
Lime-magnesia-silica studies in concrete frames.	Tenn.
Decomposition of calcium and magnesium carbonates in soil under field conditions, including drainage investigations. (A)	Tenn.
Calcic and magnesian hydrates and limestones compared at or near the neutral point of the soil for chlorosis observations.	R.I.
Agricultural value of marl.	Minn.
Marl handling.--To make marl available for agricultural use.	Mich.
A study of the properties and agricultural value of lime carbonate for sale in Pennsylvania.	Pa.
To determine the value of blast furnace slag as a source of agricultural lime.	Pa.
Effect of lime on physical properties of soils. (P)	Nebr.
The effect upon texture and tilth of marl applied from 0 to 16 tons per acre. (Northwest Substation, Crookston)	Minn.
The effect of lime with and without fertilizers and manure. (Ridgely Substation)	Md.
The value of lime, gypsum, and phosphate as fertilizers. (Sandpoint Substation)	Idaho.
The movement of calcium in soil.	N.Y.Cornell.

Manure.

Manuring experiments.	Ky.
Experiments in the use of barnyard manure. (Tribune Substation)	Kans.
Manure as a fertilizer for major crops. (Hermiston Substation)	Oreg.
Comparative value of barnyard and green manures. (Hermiston Substation)	Oreg.
Green manure v. stable manure.	R.I.
Manure v. green manure, compost, and fertilizer.	R.I.
Cow manure with straw bedding v. sawdust bedding, and the latter supplemented with phosphorus or potassium. Value of the manure compared with the cost of fertilizers.	R.I.

FERTILIZERS--Manure. (Cont.)

Fertilizer v. manure for fertility maintenance.	R.I.
Fertilizer as a supplement to manure and green manure.	R.I.
Relation of the use of manure to potash fertilization.	Wis.
Chemical changes in fermenting manures and influences of such fermentation on the solubility of crude compounds of phosphorus, potassium, and nitrogen, when mixed with manure.	Wis.
Effect of weathering and storage upon the composition of barnyard manure.	Mo.
What is the best way to work manure into the soil?	Oreg.
What is the most economic rate of use of farm manure on major field crops?	Oreg.
Rate of manuring. (Northeast Substation, Duluth)	Minn.
The use of manure in different amounts per acre and with different supplements.	Ohio.
Rate of stable manure applications on upland soil. (North Central Substation, Grand Rapids)	Minn.
How long will manure last, applied under our soil and climatic conditions.	Oreg.
Will it pay to reinforce manure with phosphates, ground limestone, or sulphur?	Oreg.
What is the value of straw and of vetch and oats green manure as compared to manure.	Oreg.
Manure experiment.--To study the relative effects of applying manure on different crops in a rotation.	Ind.
Barnyard and green manures in the Judith Basin crop rotation. (Judith Basin Substation)	Mont.
Barnyard and green manures in northern Montana crop rotations. (North Montana Substation)	Mont.
Barnyard and green manures in the Yellowstone Valley. (Huntley Substation)	Mont.
A study of upland soil. Peat as a fertilizer on upland soil.-- To compare the raw peat with stable manure as an organic fertilizer. (North Central Substation, Grand Rapids)	Minn.



FERTILIZERS--Nitrogen.

Forms of nitrogen.

Ark.

Comparative tests of sources of nitrogen.

S.C.

Comparison of different carriers of nitrogen, phosphorus, potassium, and manganese.

R.I.

A cooperative experiment on the relative value of different nitrogenous fertilizers and their influence on soil reaction.

(P)

Ala.

Nitrogen materials test.--To test the value of organic and mineral nitrogen carriers.

Ind.

Studies of the availability of organic nitrogenous substances.

Mich.

Nitrogen availability studies: (a) Availability of different nitrogenous fertilizers with and without lime and green manure, (b) influence of manure with and without lime, (c) influence of manure on denitrification, (d) nitrogen losses and gains. (Cylinder and field experiments)

N.J.

Comparative tests of nitrogenous fertilizers at the Coast and Pee Dee Stations.

S.C.

Secondary effects of different nitrogenous fertilizers on the soil and a study of the preparation of mixed fertilizers.

(P)

Ala.

The value of different carriers of plant food ingredients.

Nitrate of soda and sulphate of ammonia with more and less lime; nitrate, sulphate, cyanamid, and manure for grass top-dressing, nitrate, blood, and hoof meal, horn meal, star fish, hen manure, tankage, and acid fish in sunken pots with more and less lime, with and without cover crop.

R.I.

Rates and time of applying sulphate of ammonia and nitrate of soda.

Ark.

Calcium cyanamid v. nitrate of soda or ammonium sulphate as fertilizer.

Ala.

Cotton seed v. cottonseed meal as a fertilizer.

Miss.

FERTILIZERS--Phosphorus.

Sources of phosphorus.	Ark.
A field test of different carriers of phosphorus.	Pa.
Comparison of different carriers of nitrogen, phosphorus, potassium, and manganese.	R.I.
Determination of the relative values of different forms of phosphorus upon the soil at Columbia.--To determine the availability, the value, and the effect upon both soil and crop of the phosphorus as supplied in a number of phosphorus carriers.	Mo.
Phosphate fertilizer tests. (Northeast Substation, Duluth)	Minn.
Comparative tests of phosphate fertilizers.	S.C.
Availability and utilization of phosphorus compounds for crop use on the red hill soils of Oregon; what forms of phosphate fertilizer will give best results; what practices will make the insoluble phosphate fertilizers available to crop use; what practices will make phosphate compounds of these soils more available; what differences there may be in feeding power of crops for rather insoluble phosphates.	Oreg.
Comparison of bone meal, basic slag, acid phosphate, and raw rock phosphate as fertilizers.	Ind.
The value of different carriers of plant food ingredients: Acid phosphate, floats, double or triple superphosphate, Thomas slag, and bone with more and less lime.	R.I.
Relative availability of different natural phosphates, acid phosphates, and reverted phosphates. (A)	Ga.
Phosphate experiments.--To compare the availability of the phosphorus in raw ground phosphate rock with acid phosphate, when used with green manures.	Md.
High analysis phosphate (40 per cent $P_2O_5$ ) v. 16 per cent acid phosphate.	Ohio.
Comparison of acid phosphate v. raw phosphate.	Ala.
Acid phosphate compared with 200-mesh rock phosphate.	Ill.
Comparison of rock phosphate with acid phosphate in soil bin studies.--The comparative effects of acid and rock phosphate plus gypsum upon crop yields in a 4-yr. rotation of corn, oats, clover, and wheat, and a comparison of farm (horse) manure, and crop residues.	Ill.



FERTILIZERS--Phosphorus. (Cont.)

- Cullers' rotation of crops, including tests of rock v. acid phosphate. Ala.
- Comparison of acid and rock phosphate in connection with residues and limestone. (Elizabethtown Field) Ill.
- A study of upland soil.--To compare acid phosphate with rock phosphate, with and without manure. (North Central Sub-station, Grand Rapids) Minn.
- Comparison of different amounts of rock phosphate with different legumes. Ill.
- Raw rock phosphate compared with steamed bone meal in a grain and in a livestock system of farming and with combinations of limestone and potash. Ill.
- Acid and rock phosphate both with and without limestone. Ill.
- Comparison of different carriers of phosphorus both with and without limestone. Ill.
- Acid, rock, and superphosphate compared both with heavy application and light application of limestone. (Carlinville Field) Ill.
- Comparison of different amounts of acid and rock phosphate with a minimum amount of limestone. Ill.
- Effect of lime on the availability of phosphorus in different carriers. R.I.
- Effect of lime on the availability of the phosphorus of acid phosphate. N.Y.Cornell.
- Comparison of different carriers of phosphorus on light and heavy limed land. Ill.
- The comparative value of rock and acid phosphate with and without limestone, and bone meal with limestone, in livestock and grain system of farming. (Aledo, Dixon, Hartsburg, Raleigh, and Toledo Fields) Ill.
- Factors governing the availability of rock phosphate in acid soils. (A) Ark.
- The fineness of subdivision of rock phosphate as a factor in its effectiveness in crop production. Ill.
- The residual effect of raw rock phosphate and acid phosphate on crop production. N.Y.Cornell.

FERTILIZERS--Phosphorus. (Cont.)

- The relative efficiency of several large size initial applications of raw rock phosphate. Ind.
- Relative value of different amounts of phosphoric acid on Dekalb soils. Pa.
- To determine the value of sulphur and manure in liberating unavailable phosphates. Oreg.
- To determine the effect of phosphorus in different forms on the growth of plants and the effect of sulphur in combination with calcium (gypsum calcium sulphate) and as pure sulphur on the growth of plants and its effect on the availability of phosphorus in different forms. (A) S.Dak.
- The value of lime, gypsum, and phosphate as fertilizers. (Sandpoint Substation) Idaho.
- A study of the effect of gypsum on the availability of rock phosphate. (Carthage Field) Ill.
- Composting raw phosphate rock and sulphur with different soils. Tex.
- Composting commercial organic ammoniates, ground raw phosphates, and rich soil as affecting the solubility of the phosphates and the loss of nitrogen from the ammoniates. (A) Ga.
- What reaction range is favorable on red hill soils for legumes and for needed soluble phosphates. Oreg.

Potash.

- Comparative tests of potash fertilizers. S.C.
- Chlorides and carbonates of potassium and sodium with more and less lime. R.I.
- Effect of potassium and the other ingredients of muriate, sulphate, kainit, and magnesium-potassium sulphate. R.I.
- Comparison of different carriers of nitrogen, phosphorus, potassium, and manganese. R.I.
- The amount of active potash required for optimum growth of crops. (P) R.I.
- Relation of the use of manure to potash fertilization. Wis.



FERTILIZERS--Sulphur. (See also BOTANY--Plant Nutrition)

- Function of sulphur as a plant food. (A) Wash.
- Relation of sulphur to soil fertility and plant nutrition. Ill.
- Effect of sulphur and sulphates on soils and plant growth. Ohio.
- Sulphur--Its value to Texas soils and crops. Tex.
- Cooperative sulphur experiment.--To determine the effect of the addition of sulphur to the soil on its acidity and on potato scab (Oospora scabies). N.Dak.
- To determine the value of sulphur on various crops and on different soil types. Oreg.
- To determine the value of sulphur and sulphate, used in connection with lime, in humid sections. Oreg.
- To determine the effect of sulphur on the yield of alfalfa. (Aberdeen Substation) Idaho.
- Sulphur as a fertilizer for Wyoming soils. Wyo.
- To determine the value of sulphur and gypsum and aluminum sulphate, used in connection with sweet clover in restoring the structure of drained alkali land. Oreg.

Miscellaneous.

- The availability of activated sludge fertilizer and its suitability for agricultural purposes. Wis.

FIELD CROPS

General

- Cooperative agricultural work. Okla.
- Cooperative experiments with field crops, including oats, wheat, barley, Hubam clover, Ames Amber sirup sorghum, Sudan grass, soy beans, timothy, and seed certification. Iowa.
- Crops relation experiment. (Bowling Green Substation) Va.

FIELD CROPS--General. (Cont.)

Farm crop production investigations. Experiments in outlying fields. (Northeast Substation, Duluth)	Minn.
Cropping systems. (Delta Substation)	Miss.
Influence of cropping systems on production costs. (P)	Utah.
Rate of sowing farm crops.	Oreg.
Tillage investigations. Time of sowing in fall and spring.	Oreg.
Cultural methods for field crops. (South Mississippi Substation)	Miss.
Cultural tests for different field crops for the Delta. (Delta Substation)	Miss.
A test of 20 different crops and crop combinations used as catch crops at last cultivations or after corn harvest.	Ohio.
Study of fertilizer effects on crop yields.	Del.
Fertilizer test for field crops. (South Mississippi Substation)	Miss.
Composition of crops as influenced by fertilization and soil types.	Fla.
New or uncommon crop investigations.	Iowa.
Winter cover crops. (Raymond Substation)	Miss.
Cover crop experiments.	W.Va.
High altitude crops. Variety tests.	Colo.
The acidity and alkalinity of crops. (A)	R.I.
Amount and rate of growth of certain field crops as influenced by enviromental and other factors.	N.J.
Agronomical plant collection. (Berkeley Substation)	Calif.
Agronomical seed collection. (Berkeley Substation)	Calif.
Methods of conducting farm crop experiments.	Ga.
Methods of harvesting test plats.--To study the accuracy of records secured by harvesting a portion of a plat in comparison with the yields secured from the entire plat.	Md.
Experimental plat performance and management.	Ohio.
Resistance of crop plants to insect injury. (P)	Kans.



FIELD CROPS--Adlay.

Adlay adaptability test.--To determine the possible local adaptability of various varieties of adlay. Guan.

Alfalfa.

Genetical studies in alfalfa.--Studies from the  $F_2$  plants from the cross Medicago sativa X M. falcata. (A) N.Dak.

A study of heritable characteristics in pure lines of alfalfa. (A) Ariz.

Inheritance of seed color in hardy alfalfas and sweet clover. (A) Mont.

Alfalfa breeding. Mich.

The breeding and testing of pedigreed strains and types of alfalfa. (West Central Substation, Morris) Minn.

Practical alfalfa breeding.--To secure a variety at least as hardy as the Grimm variety which can be easily distinguished from all other varieties. N.Dak.

Breeding alfalfa adapted to sandy soil. (Spooner Substation) Wis.

A study of the effect of inbreeding in smooth brome grass. (Bromus inermis) and alfalfa (Medicago sativa). (A) N.Dak.

Alfalfa: Improvement by selection. Wyo.

Alfalfa variety test. Ala.

Alfalfa variety test. (Holly Springs Substation) Miss.

Alfalfa investigations. Variety test of alfalfa. (North Central Substation, Grand Rapids) Minn.

Variety tests of alfalfa. (Lightfoot Substation) Va.

A test of the different species and varieties of alfalfa. Pa.

A study of varieties and strains of alfalfa. Ark.

Alfalfa strains. N.J.

FIELD CROPS--Alfalfa. (Cont.)

- Alfalfa variety test.--To compare some of the more common varieties of alfalfa now found on the market with native-grown alfalfa and to ascertain if any of these much-talked-of strains are better suited to the irrigated valleys than those now being grown. N.Mex.
- Alfalfa variety test.--To determine the variety of alfalfa best adapted to local conditions. (Dickinson Substation) N.Dak.
- A study of the adaptation of the important types, varieties, and regional strains of alfalfa. Mich.
- Alfalfa varieties in the Gallatin Valley. Mont.
- Alfalfa varieties in the Judith Basin. (Judith Basin Substation) Mont.
- Alfalfa varieties in northern Montana. (North Montana Substation) Mont.
- Alfalfa.--Three varieties of alfalfa to be tested out with and without a nurse crop. (Northwest Substation, Crookston) Minn.
- Alfalfa variety tests.--To find hardy alfalfas for pasture and hay. (Rampart Substation) Alaska.
- Variety tests of alfalfa for hay and for seed. (Hermiston Substation) Oreg.
- Alfalfa: A comparison of Grimm and Kansas Common for yield and hardiness. Ohio.
- Studies of behavior of alfalfa.--A study of alfalfa varieties for yields, quality of hay, and adaptation.(Kearney Park) Calif.
- Alfalfa experiment.--To test different varieties of alfalfa and the effect of various soil treatments on them. Ind.
- Varieties of alfalfa and date of seeding. Ill.
- Alfalfa.--Variety and time of cutting studies. Ill.
- Alfalfa fertilization and variety test. Ind.
- Fertilizers for alfalfa. (Holly Springs Substation) Miss.
- Fertilizer experiments with alfalfa. (Lightfoot Substation) Va.



FIELD CROPS--Alfalfa. (Cont.)

Alfalfa fertilizer tests.--To study (a) the effect of fertilizers, especially phosphorus carriers, on yield of alfalfa; (b) the possibility of increasing the yield in old established alfalfa fields by application of commercial fertilizers. N.Mex.

Alfalfa experiments: (a) Tests of fertilizers, manure, and lime, (b) methods of seeding, (c) dates of seeding. Conn.Storrs.

Fertility test for alfalfa in the black belt of Mississippi.(P) Miss.

Fertilizer and liming experiments with alfalfa.  
(Murfreesboro Substation) Tenn.

Lime v. no lime for alfalfa. (North Central Substation, Grand Rapids) Minn.

Tests of different kinds of lime on alfalfa. (Ridgely Substation) Md.

Rate-of-liming experiments with (a) burnt lime and (b) ground limestone. A complete series for both red clover and alfalfa. (Murfreesboro Substation) Tenn.

The use of different quantities of ground lime in the growing of alfalfa. N.J.

The residual effect of commercial fertilizers with and without manure, on alfalfa. (Northwest Substation, Crookston) Minn.

The residual effect of phosphate fertilizers with and without manure on sweet clover and alfalfa. (Northwest Substation, Crookston) Minn.

To determine the advisability of manuring upland alfalfa. Okla.

A study of the lime and fertilizer requirements of alfalfa on Knox silt loam. Ind.

Sulphur fertilizer for alfalfa. Miss.

To determine the effect of sulphur on the yield of alfalfa. (Aberdeen Substation) Idaho.

Effect of sulphur upon the yield of alfalfa hay. Mont.

Cultural tests with alfalfa. Idaho.

Culture tests with alfalfa. (Appomattox and Lightfoot Substations) Va.

FIELD CROPS--Alfalfa. (Cont.)

Culture experiments with alfalfa and red clover. (Sandpoint Substation)	Idaho.
Forage investigations.--(a) Grasses and legumes for hay and seed, (b) cultural tests with alfalfa, (c) orchard grass selection and improvement, (d) introduction and testing of miscellaneous forage crops, (e) seed introduction.	Idaho.
Cultivation of alfalfa in the Judith Basin. (Judith Basin Substation)	Mont.
Alfalfa in rows v. alfalfa sown broadcast. (Judith Basin Substation)	Mont.
Alfalfa in cultivated rows in northern Montana. (North Montana Substation)	Mont.
Dates of planting alfalfa. (Northwest Substation, Crookston)	Minn.
Studies in crop cultural methods.--Winter v. spring seeding of alfalfa, sweet clover, and red clover.	Ind.
Alfalfa investigations. Rate of planting alfalfa. (North Central Substation, Grand Rapids)	Minn.
Rate of seeding alfalfa in the Judith Basin. (Judith Basin Substation)	Mont.
Reseeding alfalfa in the Judith Basin. (Judith Basin Substation)	Mont.
Reseeding alfalfa in northern Montana. (North Montana Substation)	Mont.
Seeding alfalfa and sweet clover with and without a nurse crop. (Northwest Substation, Crookston)	Minn.
Alfalfa as a cover and green manure crop.	R.I.
Effect of time of harvest upon the growth and yield of alfalfa. (Judith Basin Substation)	Mont.
Effect of time of harvest upon growth and yield of alfalfa in northern Montana. (North Montana Substation)	Mont.
Studies of yield and digestibility of various cuttings of alfalfa and sweet clover.	Wash.
Value of green and ripe seeds in alfalfa and sweet clover.	Mont.
Comparison of alfalfa, sweet clover, and cowpeas and soy beans as hay crops. (Charlotte Court House Substation)	Va.

FIELD CROPS--Alfalfa. (Cont.)

Alfalfa in the Judith Basin crop rotation. (Judith Basin Substation)	Mont.
Alfalfa in irrigated rotations in the Yellowstone Valley. (Huntley Substation)	Mont.
Maintaining stands of alfalfa.	Ark.
Factors influencing the securing of a good stand of alfalfa: Effect of late and frequent cuttings; conditions causing winterkilling; comparison of hardiness of various varieties and strains; seed production; factors causing yellowing of alfalfa.	Wis.
Alfalfa seed production in the Judith Basin. (Judith Basin Substation)	Mont.
Seed production: Alfalfas and clovers. (Aberdeen Substation)	Idaho.
Alfalfa: The production of a local strain of alfalfa for seed production and resistance to leaf spot disease. Comparison of a local strain with 14 other regional strains for yield, hardiness, and freedom from disease.	Ohio.
Studies of alfalfa seed production. (P)	Idaho.
Tests of alfalfa seed secured from different localities, U.S. and foreign.	Minn.
Source of alfalfa seed with reference to hardiness.	Wyo.
Domestic v. foreign seed of alfalfa and red clover.	N.Y. State.
Alfalfa - hardiness studies.--To secure data upon the comparative amount of hardiness present in different varieties of alfalfa.	N. Dak.
Alfalfa investigations: Production and breeding.	Iowa.
Alfalfa experiments.	N.H.
Alfalfa experiments. (Staunton Substation)	Va.
Alfalfa test experiment.	Ala.
Alfalfa investigations. Nurse crop v. no nurse crop for alfalfa. (North Central Substation, Grand Rapids)	Minn.
Nurse crops for alfalfa in northern Montana. (North Montana Substation)	Mont.
Alfalfa - brome grass mixtures. (Judith Basin Substation)	Mont.



FIELD CROPS--Alfalfa. (Cont.)

Alfalfa and Brome grass on dry land in the Yellowstone Valley. (Huntley Substation)	Mont.
Duty and effect of duty of water on alfalfa.	(A) N.Mex.
Relation of time and amount of irrigation to seed production with alfalfa and sweet clover. (Hermiston Substation)	Oreg.
Irrigation of alfalfa. (Delhi Substation)	Calif.
Miscellaneous tests with alfalfa in the Judith Basin. (Judith Basin Substation)	Mont.

Artichokes.

Tests of Jerusalem artichokes.--To learn if artichokes can be successfully grown and, if so, their value for forage. (Sitka, Kodiak, Fairbanks, and Matanuska Substations)	Alaska.
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Barley.

Studies on inheritance in barley.	Ill.
Barley breeding.	Mich.
Breeding barley.	N.Y.Cornell.
Breeding work with barley.	S.C.
Barley breeding.--To create earlier and better varieties for Alaska. (Rampart Substation)	Alaska.
Barley, rye, and oat breeding.	Wis.
Cereals: Breeding and selection of pure strains of wheat, barley, oats, and rye. (Union Substation)	Oreg.
Breeding barley for resistance to wind shattering. (Berkeley, Davis, and Salinas Substations)	Calif.
Production of improved varieties of barley.	Minn.
Improvement of barley through breeding and selection. (North Platte Substation)	Nebr.
Barley variety and breeding studies.	Iowa.
Variety testing and improvement of varieties of barley by crossing and selection.	Ohio.

FIELD CROPS--Barley. (Cont.)

Variety test of barley. (North Central Substation,  
Grand Rapids) Minn.

Variety tests of barley. S.C.

Barley variety tests.--To learn the best varieties for general  
planting. (Fairbanks, Matanuska, and Rampart Substations) Alaska.

Varietal experiments with barley.--To determine what varieties  
are best adapted to this part of the State. (Dickinson  
Substation) N.Dak.

Variety tests with wheat, oats, and barley. (Aberdeen Sub-  
station) Idaho.

Small grain variety tests.--Testing of standard varieties of  
wheat, oats, rye, and barley. (Statesville Substation) N.C.

Small grain investigations. Variety test with wheat, oats,  
barley, and miscellaneous grains under high altitude  
conditions. (High Altitude Substation) Idaho.

Cereals: Varietal trials with barley, wheat, oats, peas, flax,  
and rye. (Union Substation) Oreg.

Varietal experiments with winter wheat and barley, spring wheat,  
barley, oats and field peas. (Sandpoint Substation) Idaho.

Cereal variety tests.--To test new and standard varieties of  
spring wheat, oats, barley, and winter rye, as to yielding  
capacity, resistance to disease, and trade value as measured  
by milling and baking tests. N.Dak.

Varietal trials, including wheat, barley, oats, field peas,  
corn, and potatoes. (Hood River and Moro Substations) Oreg.

Varietal trials of winter and spring grains, including wheat,  
oats, and barley. Oreg.

Variety testing and head selection of barley for yeild and early  
maturity. Wyo.

Barley and oats - testing varieties and hybrids.--To determine  
possible barley and oats varieties or selections resistant  
to disease and promising for yield. N.Dak.

A study of the performance of different varieties of spring wheat,  
barley, and emmer, and their adaptation to northern and central  
Illinois conditions. Ill.

FIELD CROPS--Barley. (Cont.)

A study of the adaptation of the important varieties of spring barley for Missouri conditions.--To determine the adaptation of different standard varieties of spring barley to the various soil types of the State.	Mo.
Barley varieties in the Gallatin Valley.	Mont.
Barley varieties in the Judith Basin. (Judith Basin Substation)	Mont.
Barley varieties in northern Montana. (North Montana Substation)	Mont.
Barley production: Varieties, breeding, and cultural methods.	Ark.
Variety testing, breeding, acclimatization, and cultural studies of small grains.--To improve the quality and yield of small grains, including winter wheat, oats, spring wheat, rye, winter barley and winter emmer.	Nebr.
Barley: Variety tests and cultural experiments.	Va.
Variety trials and cultural requirements with small grains.--Wheat, oats, and barley in rows to determine the relative value of varieties of cereals for California conditions, especially with regard to yield. (Davis Substation)	Calif.
The culture and improvement of small grains, including wheat, oats, barley, rye, etc.	Ariz.
Cultural experiments with spring barley.	Mo.
Rate and date of planting winter wheat, barley, and spring wheat. (Sandpoint Substation)	Idaho.
Rates and dates of seeding barley. (Northwest Substation, Crookston)	Minn.
Rate and date of seeding oats, wheat, barley, and rye.	Minn.
Date-of-planting experiments with wheat, oats, and barley; also, cotton and corn. (Jackson Substation)	Tenn.
The use of treble superphosphate with sweet clover and barley on light valley soils. (West Central Substation, Morris)	Minn.
Barley in the Judith Basin crop rotation. (Judith Basin Substation)	Mont.
Barley in northern Montana crop rotations. (North Montana Substation)	Mont.



FIELD CROPS--Barley. (Cont.)

- Barley on dry land in the Yellowstone Valley. (Huntley Substation) Mont.
- Continuous cropping plats of oats, barley, and wheat. Two tons manure each year per acre. (West Central Substation, Morris) Minn.
- Barley as a forage crop. R.I.
- Effect of stage of maturity at harvest upon the germination power of barley, wheat, and oats seed. Wyo.
- Studies in the classification of farm crops, including field beans, field peas, oats, barley, and millet varieties. Minn.
- Barley production, culture, and storage investigations. Iowa.
- Studies of varietal resistance of wheat, barley, rye, and oats to root and culm rots. Minn.
- Development of desirable agronomic types of barley resistant to Helminthosporium sativum. Minn.

Breeding--General.

- Crop breeding. Colo.
- Plant breeding.--To isolate, introduce, or produce profitable strains of cotton, corn, oats, and other crops adapted to the Delta. (Delta Substation) Miss.
- To determine the best methods of technic in plant breeding work. Minn.

Brome Grass.

- A study of the effect of inbreeding in smooth brome grass (Bromus inermis) and alfalfa (Medicago sativa). (A) N.Dak.
- Brome grass--Isolation and fertilization of strains of brome grass.--To obtain self-fertilized seed of improved strains for increase. N.Dak.
- Brome grass in the Judith Basin crop rotation. (Judith Basin Substation) Mont.
- Alfalfa-Brome grass mixtures. (Judith Basin Substation) Mont.
- Alfalfa and Brome grass on dry land in the Yellowstone Valley. (Huntley Substation) Mont.

FIELD CROPS--Broom Corn.

Broom corn.--To compare different types for the production of brush and to determine the best cultural methods for the crop under irrigation. N.Mex.

Experiments with nonsaccharine sorghums and broom corn. Calif.  
(Davis Substation)

Buckwheat.

Buckwheat investigations, including variety tests, rate, and date of seeding, and breeding for improvement. W.Va.

Buckwheat as a forage and green manure crop. R.I.

Cereals, General. (See also specific cereals)

Inheritance study of cereals: A study of the laws of inheritance with reference to specific characters. (A) Wash.

Cytological studies in cereals to determine the chromosome number and behavior in species hybrids in relation to sterility and segregation of hereditary characters in such hybrids. (A) Me.

Correlation of characters in grain. Colo.

Cereal breeding. (P) Mo.

Cereal breeding. (P) Utah.

Small grain breeding. Ark.

Investigations in cereal breeding. (Cooperatives).  
(West Central Substation, Morris, and Southeast Substation, Waseca) Minn.

Breeding cereals and forage crops and finding the best varieties for yield and disease resistance. S.Dak.

Crop breeding, including cereals, cotton, and forage crops. Ga.

Small grain investigations. Cereal breeding and selection in the nursery. (Aberdeen Substation) Idaho.

Grain breeding by straight selection and cross hybridization followed by selection. Wis.

FIELD CROPS--Cereals, General. (Cont.)

Cereal investigations: Selection, propagation, and testing of pure lines of promise.	Va.
Crop improvement by mass and individual plant selection, including small grains, corn, grain sorghums, and peanuts.	Tex.
Improvement of the small grains.	Ill.
The development of smut-resistant varieties of small grains.	Minn.
Grain varieties.	Utah.
Variety test of grains. (Northeast Substation, Duluth)	Minn.
Variety tests with small grains.	Miss.
Small grains--over-State variety testing.	Mich.
Selection of varieties and strains of small grains.	Wyo.
Varietal trials of small grains, corn, and forage crops. Uniform rust nursery. (Northwest Substation, Crookston)	Minn.
Small grain investigations. Variety tests with wheat, oats, barley, and miscellaneous grains under high altitude conditions. (High Altitude Substation)	Idaho.
Variety tests.--To compare the most promising varieties of small grains, corn, and soy beans. (Pinney-Purdue, Jennings Co., Sand Experiment, and Herbert Davis Forestry Fields)	Ind.
Cereal investigations. Varietal tests of wheat, oats, barley, grain sorghums, and corn. Cereal breeding, seed treatment tests, and method and time of seeding tests with cereals. (Fort Hays Substation)	Kans.
Cereal investigations. Varietal trials of winter and spring grains, including wheat, oats, and barley.	Oreg.
Variety test of cereals in pure line plats. Selection of varieties and increase of pure line seed of best varieties.	N.Mex.
Varietal tests of cereal and forage crops. (Tribune and Colby Substations)	Kans.
Variety test of cereals for the production of hay. (High Altitude Substation)	Idaho.



FIELD CROPS--Cereals, General. (Cont.)

Varietal investigations of cereals and large seeded legumes. (Irrigation Substation)	Wash.
Tests of new varieties in rod rows.	Minn.
Grain varietal tests: Test of furrow method of seeding wheat, cultivation tests of corn, etc.	Kans.
Variety testing, breeding, acclimatization, and cultural studies of small grains.--To improve the quality and yield of small grains, including winter wheat, oats, spring wheat, rye, winter barley, and winter emmer.	Nebr.
Cooperative grain experiments.--To test several grains, particularly our hybrids, in various soils and exposures. (Matanuska Sub- station)	Alaska.
Preliminary rod row tests of promising nursery sorts. Various selections and new productions of wheat, oats, barley, from the plant breeding station at University Farm. (Northwest Substation, Crookston)	Minn.
The culture and improvement of small grains, including wheat, oats, barley, rye, etc.	Ariz.
Seeding methods for small grains.	Wyo.
Methods of seeding cereal and forage crops. (Tribune Substation)	Kans.
Methods of seed bed preparation for small grains.	Wyo.
Rolling seed bed for grain on upland soil. (North Central Sub- station, Grand Rapids)	Minn.
Effect of cultipacking upon yield of grains. (Sandpoint Substation)	Idaho.
Time and rate of sowing winter cereals.	Ga.
Dates and rates of seeding small grains. (Staunton Substation)	Va.
Rates and dates of seeding winter grains. (Northwest Substation, Crookston)	Minn.
Rate of seeding experiments with various small grain crops.	Tenn.
Furrow drill for winter and spring grains in the Judith Valley. (Judith Basin Substation)	Mont.

FIELD CROPS--Cereals, General. (Cont.)

Minimum plant food attending maximum production along the line of cereals.	S. Dak.
Influence of time of application of nitrate of soda on yield and nitrogen content of grain. (A)	Ohio.
Top-dressing experiments with winter cereals, corn, and cotton.	Ga.
Tests with grains.	Wyo.
Small grain trials. (Valentine Substation)	Nebr.
Legumes with small grains.	Ark.
Vetch and grain mixture for hay.	Ala.
Small grains for hay in the Judith Basin. (Judith Basin Substation)	Mont.
Small grains for hay in northern Montana. (North Montana Substation)	Mont.
Reliability of methods. Renewal of border rows (a) at beginning heading, (b) at full heading.	Minn.
Cereal physiological studies. (Adams Substation)	Wash.
Relation of soil moisture, structural development, and yield of small grain. (A)	Colo.
Lodging of small grains. Effect of environmental factors on chemical composition of plants with special reference to this effect on the carbohydrate-nitrogen relation. (A)	Ohio.
Lodging of small grains. Effect of environmental factors on physical characters of plants, such as diameter of culm, breaking strength of culm, length of culm, number of nodes, number of leaves, etc; also, effect on moisture content of soil, rate of evaporation as measured by atmometers, wind velocity, etc. (A)	Ohio.
Lodging of small grains. Effect, if any, of environmental factors on the formation of condensation products, with special reference to cell wall material and strengthening substances, such as lignin. (A)	Ohio.

FIELD CROPS--Cereals, General. (Cont.)

Lodging of small grains. The relation of field conditions and cultural practices to the carbohydrate-nitrogen ratio, particularly to the nitrogen. (A) Ohio.

Lodging of small grains. Varieties in relation to the carbohydrate-nitrogen ratio, particularly the carbohydrates, by virtue of variation in their stooling characteristic. (A) Ohio.

Lodging of small grains. The effect of shading with cheese-cloth on the carbohydrate-nitrogen ratio, particularly as to the carbohydrate; or, the effect of reduced sunlight on the development of carbohydrates. (A) Ohio.

Tests of various grain mixtures. Minn.

Tests of mixtures of small grains at Churchville and Alfred, N.Y. N.Y. Cornell.

Combination of cereal crops: Oats, barley, spring wheat, and flax grown in several combinations for yields of grain. Ohio.

Field pea- grain mixtures for hay in the Judith Basin. (Judith Basin Substation) Mont.

Field pea - grain mixtures for hay in northern Montana. (North Montana Substation) Mont.

Commercial fields of grain and forage. (North Montana Substation) Mont.

Cooperative work in testing and disseminating stocks of small grains. Ark.

Seed treatment materials and methods. Cereals and potatoes. Oreg.

Small grain fertility rotation. Okla.

Grain inspection and grading. Mont.

Clovers, etc. (See also Legumes, General, p. 107)

Clover: (a) Plant selection of individual resistant to disease, (b) a study of the progeny of these plants as to resistance. Ohio.

Variety test of clovers. (North Central Substation, Grand Rapids) Minn.

Varietal trials with clover. Oreg.



FIELD CROPS--Clovers, etc. (Cont.)

A comparison of the several species and varieties of clover, as to yield and hardiness.	Ohio.
Variety trials of various farm crops, including corn, cotton soy beans, grasses, clovers, and lespedezas. (Crossville, Columbia, and Jackson Substations)	Tenn.
Variety tests of clover for seed and forage production.	Wis.
Testing clovers for yields of hay.	Va.
Grasses and clovers for forage and permanent pasture, including Bermuda grass and bur and crimson clover. (Holly Springs Substation)	Miss.
Clovers for hay on irrigated lands.	Mont.
Testing varieties of grasses and clovers both for forage and for hay as to their adaptability to local climate and soil conditions. (Starkville Substation)	Miss.
A comparison of methods and times of seeding clover.	Ohio.
Clover seeding experiments. A study of time and methods of seeding.	Ky.
Investigation in seeding clover in subirrigated valleys. (Valentine Substation)	Nebr.
The residual effect of fertilizers upon the yields of wheat and red clover.	Ill.
The effect of straw mulch applied to wheat upon the yield of wheat and the following clover.	Ohio.
Alfalfa substitutes--clovers and grasses. (Hermiston Substation)	Oreg.
Clover in the Judith Basin crop rotation. (Judith Basin Substation)	Mont.
Clover utilization. (Northeast Substation, Duluth)	Minn.
Utilization of the clover crop on upland soil. (North Central Substation, Grand Rapids)	Minn.
Tests of peas and clovers.--To ascertain the value of these legumes for Alaska and how best to grow them. (Fairbanks and Matanuska Substations)	Alaska.

FIELD CROPS--Clovers, etc. (Cont.)

Experiments with orchard grass and clovers.	Ark.
Red, mammoth, alsike, and white clover investigations. Production.	Iowa.
A study of the possibilities of Alsike clover as a hay and as a seed crop when it constitutes one of the crops in a four-year rotation of corn, oats, wheat, and clover.	Ill.
Breeding red clover.	Iowa.
The production of an improved red clover for northern Minnesota. (North Central Substation, Grand Rapids)	Minn.
Red clover: Improvement of red clover in regard to yield, vigor, etc., under various environmental conditions.	Ky.
A study of red clover from various seed sources.	Del.
Domestic v. foreign seed of alfalfa and red clover.	N.Y.State.
Comparison of imported and domestic strains of red clover seed for yield and hardiness.	Ohio.
Comparison of red clover from European and American seed when spring-sown.	Tenn.
Trials of red clover seed from various foreign countries in comparison with home-grown seed. (Jackson Substation)	Tenn.
Tests of imported red clover seed in comparison with American-grown.	Pa.
A test of foreign clover, including Bohemian, Chilean, German, Hungarian, and Italian red clovers.	N.H.
Comparison of hardiness of red clover from the various seed-producing sections of the world.	Minn.
A study of the adaptations of the important strains of red clover, together with a study of diseases, time of clipping, and other factors affecting seed production.	Mich.
Culture experiments with alfalfa and red clover. (Sandpoint Substation)	Idaho.
Rate-of liming experiments with (a) burnt lime and (b) ground limestone. A complete series for both red clover and alfalfa. (Murfreesboro Substation)	Tenn.



FIELD CROPS--Clovers, etc. (Cont.)

Studies in crop cultural methods.--Winter v. spring seeding of alfalfa, sweet clover, and red clover. Ind.

Trials to determine the best method of securing stands of red clover. Oreg.

Medium red clover as a hay and seed crop. Ill.

A study of red clover failures. Ky.

Comparison of red and mammoth clovers. R.I.

Difference between mammoth red clover and common red clover. N.J.

Mammoth clover as a seed crop and as a soil improver. Ill.

Crimson clover breeding. Mich.

Test of crimson clover from various seed sources. Del.

Production trial of Ladino clover. Oreg.

Seed production: Alfalfas and clovers. (Aberdeen Substation) Idaho.

Clover, Sweet.

Inheritance of seed color in hardy alfalfas and sweet clover. (A) Mont.

Sweet clover breeding. Mich.

Variety tests of sweet clover for hay and for seed. (Hermiston Substation) Oreg.

Experiments with sweet clover. (a) Variety of species test, (b) nurse crop test, (c) scarified v. unscarified sweet clover. (Dickinson Substation) N. Dak.

Sweet clover.--Three varieties of sweet clover to be tested out with and without a nurse crop. (Northwest Substation, Crookston) Minn.

Sweet clover investigations, including (a) varietal studies, (b) variation of coumarin content, and (c) cultural experiments. Mo.



FIELD CROPS--Clover, Sweet. (Cont.)

Sweet clover varieties, culture, and fertilizer treatments.	Va.
Sweet clover cultural studies.	Mich.
Time and rate of seeding Melilotus.	Ala.
Sweet clover investigations.--To determine both the time of seeding and method of preparing the seedbed in growing sweet clover.	Okla.
Studies in crop cultural methods.--Winter v. spring seeding of alfalfa, sweet clover, and red clover.	Ind.
The use of treble superphosphate with sweet clover and barley on light valley soils. (West Central Substation, Morris)	Minn.
The residual effect of phosphate fertilizers, with and without manure, on sweet clover and alfalfa. (Northwest Substation, Crookston)	Minn.
Melilotus, with and without lime, followed by corn.	Ala.
Relation of time and amount of irrigation to seed production with alfalfa and sweet clover. (Hermiston Substation)	Oreg.
Value of sweet clover as forage crop for Wisconsin.	Wis.
Vetches and Melilotus, with and without oats, for hay.	Ala.
Sweet clover for hay in the Judith Basin. (Judith Basin Substation)	Mont.
Sweet clover for hay in northern Montana. (North Montana Substation)	Mont.
Comparison of alfalfa, sweet clover, cowpeas, and soy beans as hay crops. (Charlotte Court House Substation)	Va.
Sweet clover for seed in the Judith Basin. (Judith Basin Substation)	Mont.
Sweet clover for seed in northern Montana. (North Montana Substation)	Mont.
Sweet clover experiments to determine effect of cutting for hay the first year on stand and hay production the second year.	Tenn.
Pasture experiments with sweet clover.--To ascertain the value of sweet clover as pasture for dairy cows.	N.Mex.

FIELD CROPS--Clover, Sweet. (Cont.)

Sweet clover investigations.--To compare differences in strains of yellow sweet clover, value of yellow and white sweet clover for pasture purposes, silage production from sweet clover, and to compare it with other legumes as to ability to establish stands in competition with weeds. N. Dak.

Biennial sweet clover for New England pastures. Conn. Storrs.

The utilization of sweet clover as pasture for beef cattle. (Northwest Substation, Crookston) Minn.

Sweet clover as a cover and forage crop. R. I.

Sweet clover as a crop for soil improvement in a 3-year and a 4-year rotation. Ill.

Factors influencing the use of sweet clover in soil fertility maintenance. Ill.

Rotation experiments, primarily to discover the value of sweet clover in soil improvement. (High Altitude Substation) Idaho.

The use of sweet clover as a soil improvement crop. (Northwest Substation, Crookston) Minn.

Value of green and ripe seeds in alfalfa and sweet clover. Mont.

Effect of clipping sweet clover at different stages of growth. Ky.

Studies of yield and digestibility of various cuttings of alfalfa and sweet clover. Wash.

Nurse crops for sweet clover in the Judith Basin. (Judith Basin Substation) Mont.

Nurse crops for sweet clover in northern Montana. (North Montana Substation) Mont.

Seeding alfalfa and sweet clover with and without a nurse crop. (Northwest Substation, Crookston) Minn.

Sweet clover seed scarification.--To determine the effect of scarifying upon the longevity of the seed. (Northwest Substation, Crookston) Minn.



FIELD CROPS--Clover, Sweet. (Cont.)

- Sweet clover seed scarification.--To determine the increase in germination produced by scarifying clean hulled sweet clover seed under standard conditions. (Northwest Substation, Crookston) Minn.
- Sweet clover seed scarification.--To determine the amount of dockage produced by scarifying clean hulled sweet clover seed under standard conditions. (Northwest Substation, Crookston) Minn.
- Sweet clover seed scarification.--To determine the effect of second scarifying of seed which has been put into the scarifer in an unhulled condition. (Northwest Substation, Crookston) Minn.
- Determining sweet clover plants per acre, their average height and amount of dry matter per acre when spring plowed as a green manure crop. Ill.
- Tests with biennial sweet clovers. Iowa.
- Hubam clover breeding. Iowa.
- Experiments with annual sweet or Hubam clover to learn its genetic origin. (Aroostook Farm) Me.
- Annual (Hubam) and biennial sweet clover. Ohio.
- Hubam clover production. Hubam clover analyses. Iowa.
- A comparative study of the anatomy and cytology of Hubam clover. Iowa.
- Hubam clover as a hay crop. Conn.Storrs.
- Increase and distribution of Hubam clover seed. Iowa.
- Seed production of Hubam clover. Iowa.
- Forage production of Hubam clover. Iowa.
- Soils studies with Hubam clover. Iowa.
- Studies of Canadian Albotrea (biennial yellow-blossomed sweet clover). Wis.
- Effect of sweet clover upon crop yields. (High Altitude Substation) Idaho.
- Effect of sweet clover upon nitrogen accumulation and crop yields. (Sandpoint Substation) Idaho.



FIELD CROPS--Corn.

Genetic Studies.

- Mendelian studies with corn. N. Y. Cornell.
- Genetic studies of corn with special reference to linkage. N. Y. Cornell.
- A genetic study of hereditary characteristics in corn,  
involving their linkage relations and variability. (A) Conn. State.
- Genetic analysis of maize, including (a) the inheritance of  
Mendelian characters in maize, (b) the relative frequency  
of crossing over in microsporogenesis and megasporogenesis,  
(c) the occurrence and frequency of mutation in the factor  
of pericarp color in maize, and (d) competition among male  
gametes in maize. (A) Mo.
- A study of the inheritance of certain characters of corn. Minn.
- Field corn--ear row and character inheritance work. Mich.
- Corn: The inheritance of prominent ear and stalk characters  
and their relation to yield, namely; (a) shape of ear,  
(b) length of ear, (c) number of rows per ear, (d) filling  
of tip, (e) indentation of kernel, (f) height of ear in  
stalk, (g) height of plant, (h) proportion of grain to cob. Ohio.
- Correlation studies with corn. Iowa.

Breeding Experiments.

- Corn breeding. La.
- Corn breeding. Pa.
- Breeding experiments with corn. (A) Ala.
- Breeding work with corn. S. C.
- Corn production: Breeding. Ark.
- Corn breeding investigations. N. C.
- Corn breeding and improvement. Idaho.
- Corn breeding by means of controlled pollination. (P) Kans.

FIELD CROPS--Corn. Breeding Experiments. (Cont.)

Corn breeding by inbreeding and selection in self-fertilized lines.	N.J.
Ear-to-row breeding work with corn.	S.C.
Breeding of field corn. The production of one outstanding, high-yielding variety adaptable to the varying climatic conditions in Porto Rico.	Porto Rico:
Breeding field corn and sunflowers.	N.Y.Cornell.
Breeding experiments with wheat, oats, corn, and sorghums.	Kans.
Corn breeding.--To determine the characteristics of parent strains that are essential to the production of high-yielding hybrid progenies.	(A) Miss.
Breeding corn for disease-resistance and yield.	Ill.
Breeding corn for yield and disease resistance.	Ky.
Corn; Breeding a high yielding, heat resistant field corn.	Ariz.
The development of varieties of corn resistant to root rot and stalk rot.	Minn.
Corn breeding in relation to the European corn borer infestation and control in Ohio.	(P) Ohio.
Improvement of corn through breeding and selection. (North Platte Substation)	Nebr.
To establish a system of corn breeding to produce an improved variety for this section of the State. (Caldwell Substation)	Idaho.
Corn breeding--inbreeding--pure line work.	Mich.
The effect of inbreeding and crossing on corn, in relation to vigor, rate of growth, productiveness, and variability.	(A) Conn.State.
Improvement of corn through inbreeding and subsequent cross breeding.	Minn.
Degree of close breeding in maize. A study of the degree to which close breeding may be practiced with safety in fixing selected types.	(A) Nebr.

FIELD CROPS--Corn. Breeding Experiments. (Cont.)

Corn breeding experiments.--To establish pure lines from a few of the best varieties and then by hybridization to get varieties of superior productivity.		Tenn.
Hybridization studies with corn.		Iowa.
Line-breeding in corn, using inbred stocks as foundation material.		Iowa.
Corn improvement.	(P)	Iowa.
Corn improvement. (Northeast Substation, Duluth)		Minn.
Cooperative corn improvement.		Ark.
A new line breeding method of corn improvement.	(P)	Iowa.
Improvement of yield and uniformity of corn and a study of the methods whereby this can be effected.	(P)	Wis.
Corn improvement--Subproject No.1, Self fertilization of lines within corn varieties to be used in crossing for the production of improved high-yielding varieties.	(P)	N. Dak.
Methods for the improvement of naturally cross-fertilized plants by selection in self-fertilized lines, with particular attention to the monoecious wind-pollinated corn plant.	(A)	Conn. State.
The production of improved varieties of corn for northern Minnesota.		Minn.
Corn improvement at Waseca.		Minn.
Selection studies with corn.		Iowa.
Selection and breeding of corn for eastern Idaho. (Aberdeen Substation)		Idaho.
Improvement of corn by selective breeding.		Ind.
Corn improvement by selection ear-to-row method. (North Central Substation, Grand Rapids)		Minn.
Effect on yields of corn of ear-row selection, and of detasseling backward or poorly eared stalks.		R. I.
Selection of varieties and strains of corn.		Wyo.



FIELD CROPS--Corn. Breeding Experiments. (Cont.)

The effect of selection of certain chemical and physical characters of the corn plant.	Ill.
Effect of continuous selection on yield in corn.	Ill.
Corn production, selection, breeding, and variety adaptation.	Md.
Crop improvement by mass and individual plant selection, including small grains, corn, grain sorghums, and peanuts.	Tex.
Selfing corn plants of Northwestern Dent and other varieties.-- To isolate strains of pronounced type to serve as the basis of future practical breeding.	N Dak.
Corn: The effect upon yield of crossing the same variety and distinct varieties.	Ohio.
Studies on development of cold-resistant corn, and development of early maturing varieties for northern Wisconsin.	Wis.
Corn breeding work.--To develop a strain of corn suitable for table use and not seriously susceptible to injury by the corn earworm ( <u>Chlosidea obsoleta</u> ).	Virgin Islands.
Suckering of corn - inheritance and effects.-- To determine the effect upon productiveness, type, sucker-producing tendencies, etc. of continuously selected seed from suckering stalks.	Ind.
Experiments with corn. Improvement tests.--To produce varieties adapted to this region. (Dickinson Substation)	N.Dak.
Corn breeding and improvement: Classification studies.	Idaho.

Varietal Experiments.

Corn: Variety tests.	Ala.
Variety test of corn. (Sandpoint Substation)	Idaho.
Variety tests of corn.	Ky.
Variety test of corn. (North Central Substation, Grand Rapids)	Minn.
Variety tests of corn. (Starkville and Holly Springs Substations)	Miss.
Variety tests of corn.	S.C.

FIELD CROPS--Corn. Varietal Experiments. (Cont.)

Variety tests of corn. (Appomattox, Bowling Green, Chatham, Holland, Lightfoot, Martinsville, Staunton, and Charlotte Court House Substations)	Va.
Corn breeding investigations. Variety studies with corn.	Iowa.
A study of varieties of corn.	Pa.
Corn--over-State variety testing.	Mich.
Extensive variety experiments with corn.	Ala.
Variety tests of corn, wheat, and soy beans. (Ridgely Substation)	Md.
Crop variety tests: Corn, wheat, oats, and soy beans.	Del.
Varietal trials of corn, wheat, oats, lespedeza, and soy beans.	Tenn.
Variety trials of various farm crops, including corn, cotton, soy beans, grasses, clovers, and lespedezas. (Jackson, Columbia, and Crossville Substations)	Tenn.
grains, Varietal trials of small/corn, and forage crops.	
Uniform rust nursery. (Northwest Substation, Crookston)	Minn.
Varietal trials, including wheat, barley, oats, field peas, corn, and potatoes. (Moro and Hood River Substations)	Oreg.
Variety tests.--To compare the most promising varieties of small grains, corn, and soy beans. (Pinney-Purdue, Jennings Co., Sand, and Herbert Davis Fields)	Ind.
Varietal trials of small grains, corn, and forage crops. Nursery work. (Northwest Substation, Crookston)	Minn.
Corn variety tests. Comparison of yields per acre of different corn varieties. (North Louisiana Substation, Calhoun)	La.
Corn variety test and selection of strains. (Torrington)	Wyo.
Comparative adaptation of different varieties of corn.	Ark.
Corn variety test. Hill check system. Upland and alluvial soil areas.	La.
Corn: varietal experiments.--To determine what varieties are adapted to this climate for grain and silage production. (Dickinson Substation)	N. Dak.
Late planted corn variety test.	Ala.



FIELD CROPS--Corn. Varietal Experiments. (Cont.)

Experiments with corn. Environmental experiment.--To compare strains of Northwestern Dent obtained from different sources.	N.Dak.
A detailed study of the performance of early, medium, and late varieties of corn suited to the various sections of Illinois.	Ill.
Corn varieties in the Gallatin Valley.	Mont.
Corn varieties in the Judith Basin. (Judith Basin Substation)	Mont.
Corn varieties in northern Montana. (North Montana Substation)	Mont.
Corn varieties on dry land in the Yellowstone Valley. (Huntley Substation)	Mont.
Corn varieties for grain on irrigated land. (Huntley Substation)	Mont.
Corn in irrigated rotations in the Yellowstone Valley. (Huntley Substation)	Mont.
To compare types and varieties of corn suited to North Dakota as to their yields of dry matter and production of nutrients.	N.Dak.
Corn: A test of varieties commonly grown in the State and of pedigreed strains produced by the station.	Ohio.
Variety test of corn.--To determine yields of different varieties of corn as shown by competitive tests.	Okla.
Variety and cultural tests with corn.	Va.
Corn investigations. Variety tests - selfing for smut resistance - rate of seeding.	W.Va.
Variety tests and cultural methods for corn.--To test methods of preparing the ground, applying the water, and cultivating the crop.	N.Mex.

Cultural Experiments.

Corn cultural studies.	Mich.
Cultivation experiments with corn.	Ark.
General culture studies with corn.	Iowa.
Comparison of effect of fall plowing, spring plowing, and no plowing on corn, potatoes, and wheat. (Northwest Substation, Crookston)	Minn.



FIELD CROPS--Corn. Cultural Experiments. (Cont.)

- Tillage experiments with both corn and cotton.--To determine the best depth of plowing and cultivation. (Jackson Substation) Tenn.
- Cultural experiments with corn, including (a) rate of planting corn, (b) methods of preparing sod land for corn, (c) methods of preparing stubble land for corn, (d) depth of plowing and subsoiling, (e) methods of cultivation, and (f) methods of planting corn. Mo.
- Cultivation tests of corn: Test of furrow method of seeding wheat; grain varietal tests. Kans.
- Corn: Comparison of effect upon corn of scraping ground with hoe v. cultivation to kill weeds and conserve moisture. Ohio
- Date-of-planting experiments with both corn and soy beans. Tenn.
- Date-of-planting experiments with wheat, oats, and barley, also cotton and corn. (Jackson Substation) Tenn.
- Time of planting corn. (A) Ark.
- The effect of time of planting upon the yield of standard corn varieties of corn.--To determine the effect of seasonal conditions upon the production of varieties of corn which differ as to the time required to mature a crop. Ill.
- The relation of date of planting and stand to yield of corn. Ohio.
- Early planting of silage corn compared with regular date. Conn. Storrs.
- Phenological observations as related to time of planting corn.-- To determine the relation between certain common periodical annual events, such as the budding and flowering of trees to the best time to plant corn. Ind.
- Rates of planting corn. Ark.
- Rate of planting corn for grain and for ensilage. (North Central Substation, Grand Rapids) Minn.
- Corn spacing experiments. Miss.
- Spacing test with corn. Ga.
- A comparison of distance apart to plant corn, corn and soy beans, and sunflowers. Minn.

FIELD CROPS--Corn. Cultural Experiments.(Cont.)

- Culture methods for corn. Spacing, also scraping as compared with cultivation at different depths, no cultivation as compared with different number of cultivations, and a comparison of planting on a well prepared seed bed and on rough ridge. (Starkville, Holly Springs, and Delta Substations) Miss.
- Spring experiments with both corn and cotton.(Jackson Substation) Tenn.
- The influence of thickness of planting of corn on soils of different texture. Wis.
- Sunflowers and corn. Rate and method of seeding. (Judith Basin Substation) Mont.
- Rates and dates of planting corn. (Northwest Substation, Crookston) Minn.

Fertilizer Experiments.

- The effect of different amounts and different methods of applying commercial fertilizers to the corn crop.--To determine the effect of adding various amounts of commercial fertilizer to corn both in the hill or drill and over the entire soil surface upon the resulting crop. Mo.
- Methods of applying fertilizers to corn. Ohio.
- Fertilizer experiments with corn. (Holland, Martinsville, and Staunton Substations) Va.
- Triangular fertilizer experiments with cotton, corn, and wheat, followed by cowpeas, grown in rotation. Ga.
- Top-dressing experiments with winter cereals, corn, and cotton. Ga.
- Fertilizer needs of corn on the grass sod in non-manure rotations. R.I.
- Rotation and fertilizer experiments with corn, sweet potatoes, peanuts, and Napier grass, to determine the production of corn, sweet potatoes, and peanuts in rotation, using various forms of commercial fertilizers and lime, and also the best method of fertilizing Napier grass. Fla.
- Continual culture of field corn: 50 pounds of nitrogen (a) with no cover crop, (b) with stover turned in, (c) with rye cover crop; 20 pounds of nitrogen with legume cover crop. R.I.

FIELD CROPS--Corn. Fertilizer Experiments. (Cont.)

Effect of various combinations of fertilizers on quality of wheat, corn, and soy beans.	Del.
Comparison of manure, commercial fertilizer and vetch for cotton and corn. (P)	Ala.
Various forms of nitrogen for corn. Also different times of application of nitrate of soda to corn.	Miss.
Time of application experiments with nitrate of soda for (a) corn and (b) cotton. (Jackson and Murfreesboro Sub-stations)	Tenn.
Clover v. rye cover crops as influencing the nitrogen needs of corn.	R.I.
The nitrogen value of legumes v. rye in continual corn culture.	R.I.
Lime experiment with corn.	Ala.
The value of limestone and other fertilizing materials on the production of marketable and unmarketable corn.	Ill.
Rates of fertilizing corn following legumes.	Ala.
Source of phosphate experiment with cotton, corn, and oats in rotation.	Ala.

Silage Corn.

Corn investigations.--To determine adaptability of Indian corn for grain, silage, and forage production and to determine the yield of dry matter per acre at different stages in the development.	N.Dak.
Types and varieties of corn for silage.	Ill.
Corn varieties for silage on irrigated land. (Huntley Sub-station)	Mont.
Silage crop investigations. Variety tests of corn for the production of silage. (Aberdeen Substation)	Idaho.
A comparison of early, medium, and late maturing types of corn for silage, on the basis of milk produced per acre.	Conn. Storrs.
Cultural tests of corn for silage production.	Idaho.



FIELD CROPS--Corn. Silage Corn. (Cont.)

Corn silage: Comparison of effect of rate of planting upon yield of Blue Ridge and Clarage corn harvested for silage at different stages of maturity. Ohio.

Corn investigations.--To determine the yielding capacity of introduced varieties as compared with those locally grown for the production of silage. (Caldwell Substation) Idaho.

Miscellaneous.

Physiological studies in certain abnormal types of corn (from plant breeding crosses). N.Y.Cornell.

An investigation having to do with the development of the various parts of the maize plant as influenced by variation in soil moisture, soil composition and texture, and in the supply of plant food. Mo.

Carbohydrate variations in leaves and husks in early and late varieties of corn and their relation to moisture and temperature. (P) S.Dak.

Principles governing growth and maturity in corn. (A) Va.

Corn: A study of pollen distribution as effected by (a) wind direction and velocity, (b) condition of atmosphere, and (c) distance from field. Ohio.

Corn: The relation of the environment of the mother plant to the yielding ability of the progeny. Ohio.

Seed corn studies. Iowa.

Home-grown v. important seed corn. (Northwest Substation, Crookston) Minn.

Effect of companion cropping of corn with legumes. S.C.

Investigation of associated growth of corn and soy beans. Wis.

A comparison of the most important grain sorghums with corn for grain and forage production. Mo.

FIELD CROPS--Corn. Miscellaneous. (Cont.)

- A study of the influence of time of harvesting and methods of drying on the yield of corn.--To determine (a) the best stage to harvest corn for seed, and (b) suitable methods of drying newly harvested seed corn. Ill.
- The relation of the time of harvest of corn to (a) yield of shelled corn and fodder, (b) germination and yielding capacity of seed, and (c) amount of infection of the seed with pathogenic organisms. Ohio.
- Legumes v. rye as cover crops for corn. R.I.
- Effect of legumes in corn. Ark.
- Corn on dry land in the Yellowstone Valley. (Huntley Substation) Mont.
- Corn in northern Montana crop rotations. (North Montana Substation) Mont.
- Corn v. sunflowers in northern Montana. (North Montana Substation) Mont.
- Rotations compared with continuous corn cropping (established 1879). Ill.
- Crop rotation studies with velvet beans, corn, and sweet potatoes. Fla.
- Corn.--To determine whether the gain in kernel weight in corn incident to fertilization by foreign pollen represents a net gain in yield or merely a gain for these kernels at the expense of those not resulting from fertilization by foreign pollen. Ohio.
- Tillering in corn. Ark.
- Developing a corn germinator for the farm. Ill.
- The best laboratory medium for germinating corn. N.J.
- Corn storage and shrinkage. Iowa.
- Storage and hauling of soft corn and other crops.--(a) Methods of storing soft corn, (b) ventilation of corn cribs, (c) methods of artificially drying soft corn, (d) methods of drying seed corn, (e) methods of storing and drying small grains, and (f) artificial methods of drying and curing alfalfa, clover, etc. Ill.
- Corn as a forage crop. R.I.
- Testing and multiplication of disease-resistant corn. Ind.
- An economic study of corn production and utilization. Mont.

FIELD CROPS--Cotton

- Genetics of cotton. Studies in inheritance of cotton. Fla.
- A study of heredity and development in the cotton plant. (A) Miss.
- The genotypic constitution of certain varieties of cotton.--  
To study the mode of inheritance and association of economic  
qualities in cotton. N.C.
- A study of the inheritance of fruit characters in cotton. (A) Ark.
- Fundamental study of inheritance in cotton. (A) Tex.
- Plant breeding.--Cotton. Okla.
- Breeding work with cotton. S.C.
- Crop breeding, including cereals, cotton, and forage crops. Ga.
- Breeding improved varieties of cotton. (A) Miss.
- Cotton breeding experiments.--To get more desirable types for  
the northern limits of cotton production. Tenn.
- Cotton breeding.--Pure line selection with the Mexican Big Boll  
variety. N.C.
- Cotton breeding experiments.--To improve the quality and  
increase the length of lint, to reduce susceptibility to  
disease and insect pests, thus increasing the acre yields of  
Sea Island cotton in St.Croix. Virgin Islands.
- Cotton breeding.--To make selections within the Pima variety in  
order to improve this in earliness, percentage of lint, yield,  
and form of plant. Also crossings with Pima and various short-  
staple varieties. (A) Ariz.
- Breeding experiments with cotton.--To include relation between  
size of seed and viability, productiveness, degree of relation-  
ship between the parents of the seed, etc. (A) Ala.
- Cotton hybridizing experiments.--To utilize the drought-resistant  
and disease-and-insect-immunity characters of native wild  
cotton in hybridizing with the more improved forms to combine  
the hardy characters of the former and the more productive  
and higher lint quality of the latter. Virgin Islands.



FIELD CROPS--Cotton:

(Cont.)

Development of improved strains of cotton.	Ark.
Production and improvement of cotton varieties suitable to Tennessee conditions.	(P) Tenn.
The selection of wilt resistant strains of cotton for Arkansas.	Ark.
Natural crossing in cotton.	Ark.
Variety testing and breeding.	Fla.
Cotton production: Variety studies.	Ark.
Cotton variety test. Upland and alluvial soil areas.	La.
Variety tests with cotton. (Starkville and Holly Springs Substations)	Miss.
Cotton variety tests.	S.C.
Variety tests with cotton. (Holland Substation)	Va.
Variety tests of cotton.--To determine the yields of different varieties of cotton as shown by competitive tests.	Okla.
Cooperative cotton variety study.	Ark.
Cotton variety tests. A comparison of short staple varieties.	Ala.
A study of the standard commercial varieties of cotton. (A)	Miss.
Cotton variety test.--To test out the leading varieties of cotton as to yields per acre and percentage of lint, and their adaptability to northern Louisiana. (North Louisiana Substation, Calhoun)	La.
Cotton variety test.--(a) To determine whether or not cotton can be successfully grown in the irrigated valleys, (b) to ascertain, as nearly as possible, the best varieties under the climatic conditions, (c) to compare the short staple varieties and the long staple varieties.	N.Mex.
Extensive variety experiments with cotton.	Ala.
Cotton varieties.--To supply reliable information to growers of the tobacco belt. (Rocky Mount)	N.C.

FIELD CROPS--Cotton.

(Cont.)

Variety test of cotton.--To determine what variety or strain of cotton is best adapted to conditions in St.Croix. Virgin Islands.

Variety trials of various farm crops, including corn, cotton, soy beans, grasses, clovers, and lespedezas. (Jackson, Columbia, and Crossville Substations) Tenn.

Variety trials of cotton, soy beans, and lespedeza. (Murfreesboro Substation) Tenn.

A study of the adaptations of the important varieties of cotton for the southeast Missouri lowlands. Mo.

Cotton.--Methods of preparation for planting. Ala.

Cultural methods for cotton. (Holly Springs and Delta Substations) Miss.

Tests of methods of cultivating cotton. S.C.

Cultural experiments with cotton, kafir, and oats. Okla.

Cultural experiments with cotton.--To determine the best cultural methods for cotton in the Imperial Valley. Calif.

Time and method of preparing land for cotton. S.C.

Time for preparing seed bed for cotton. N.C.

Effect of late cultivation on cotton. S.C.

Tillage experiments with both cotton and corn.--To determine the best depth of plowing and cultivation. (Jackson Substation) Tenn.

Cotton culture and spacing tests. S.C.

Cotton spacing. Ala.

Spacing experiments with cotton. Ark.

Spacing of cotton. Ga.

Cotton spacing experiments. Miss.

FIELD CROPS--Cotton.

(Cont.)

Cotton spacing tests. (Boll Weevil Control Station, Florence)	S.C.
Spacing experiments with cotton. (Columbia Substation)	Tenn.
Cotton spacing.--Tests of cotton given no thinning, 8 inches, 12 inches, 18 inches, and 2 ft. in the row.	N.C.
Spacing and thinning tests with cotton.--To determine the influence of different methods of spacing and thinning upon the yields of cotton.	Virgin Islands.
Spacing experiments with both cotton and corn. (Jackson Substation)	Tenn.
Field tests with cotton. Spacing and time of planting tests.	Fla.
Use of the weeder in thick spacing cotton.	Ark.
Date-of-planting experiments with wheat, oats, and barley; also cotton and corn. (Jackson Substation)	Tenn.
Rate of distribution of seed and time of thinning cotton.	Tex.
Effect of time of planting on development and fruiting of cotton.	S.C.
Cultural experiments with cotton, including fertilizer tests.	Mo.
Time of turning under cover crops of rye in cotton fields.	S.C.
Fertilizer experiments with cotton. (Holland Substation)	Va.
Time of applying fertilizers to cotton.	S.C.
Rate of applying fertilizers to cotton.	Ala.
Rate of application of fertilizer to cotton.	Ga.
Rates of fertilizing cotton following legumes.	Ala.
Rate of fertilizing cotton with and without poison.	Ala.
Cotton fertilization with and without dusting for weevil control. (North Louisiana Station, Calhoun)	La.
Test on time and method of applying fertilizer to cotton.	S.C.



FIELD CROPS--Cotton:

(Cont.)

Triangular fertilizer experiments with cotton, <del>corn</del> , and wheat, followed by cowpeas grown in rotation.	Ga.
Top-dressing experiments with winter cereals, corn, and cotton.	Ga.
Effect of fertilizers on fruiting habits of cotton.	S.C.
Fertilizer experiments with cotton.--To determine the influence of different fertilizers on quality and yield of lint when applied to cotton soils in the Virgin Islands.	Virgin Islands.
Comparison of manure, commercial fertilizer, and vetch for cotton and corn.	(P) Ala.
Various forms of nitrogen for cotton.	Miss.
Source and amounts of nitrogen in cotton fertilizer.	Ga.
Time of application experiments with nitrate of soda for cotton and corn. (Jackson and Murfreesboro Substations)	Tenn.
Sources of phosphorus in fertilizers for cotton. (Holland Substation)	Va.
Source of phosphate experiment with cotton, corn, and oats in rotation.	Ala.
Tests of various carriers of phosphorus as applied to cotton.	Miss.
Fertilizer experiments with acid phosphate and potash salts for cotton. (Jackson Substation)	Tenn.
Sources of potash for cotton.	Ala.
Tests on time of applying potash to cotton.	S.C.
High and low lime requirements cropping system for cotton.	Ala.
Lime experiment with cotton.	Ala.
Relation of oil and nitrogen content of cottonseed to other characters.	(A) Ark.
Effect of environment <sup>el</sup> /factors upon time and rate of blooming in the cotton plant.	(A) Ga.
Factors influencing the oil content of cottonseed.	(A) S.C.

FIELD CROPS--Cotton:

(Cont.)

Hill test of cotton.		S.C.
Effect of topping cotton on rate of fruiting and development and yield.		S.C.
Effect of pruning on fruiting of cotton.		S.C.
Effect of seed treatment on yield etc. of cotton.		S.C.
Cottonseed treatment.--A comparison of different methods of treating cottonseed before planting to hasten germination. (Raleigh and Rocky Mount Substations)		N.C.
Germination studies with cotton.		Ariz.
Germination of cottonseed and growth of the seedling at low temperature.	(A)	S.C.
Effect of quality of cottonseed on yield, staple, lint percentage, and money value per acre.		S.C.
Correlation study in cotton of various botanical and agronomic characters with special reference to yield.	(P)	Okla.
Water requirements and the economical use of water for cotton.	(P)	N.Mex.
Cotton production in relation to soil fertility and irrigation and soil moisture.	(P)	Ariz.
Place effect studies with cotton.--To study the place effect upon cotton qualities when seed of the same strain have been grown in different localities.	(A)	N.C.
Study of the acclimatization or adaptation to local conditions of the cotton plant.	(A)	Miss.
A study of the factors which influence the growth and development of cotton buds and bolls.	(A)	S.C.
Root development of the cotton plant.	(P)	Ariz.
The culture and development of Pima and upland cottons.		Ariz.
Cotton wilt test. The testing of various commercial varieties on badly wilt-infected soil.		Miss.
Wilt-resistance in cotton.		Ark.
Cotton shedding.	(P)	Ariz.

FIELD CROPS--Cowpeas.

- Variety test of cowpeas. (Appomattox, Bowling Green, Chatham, Holland, Lightfoot, Martinsville, Staunton, and Charlotte Court House Substations) Va.
- Variety tests of cowpeas.--To determine the yield of different varieties of cowpeas as shown by competitive tests. Okla.
- Cowpeas: Variety tests for seed and hay. Ala.
- Tests of varieties of cowpeas for seed and hay. Md.
- Cowpeas: Varieties, culture, and yields of hay and grain. Va.
- Cowpea experiments.--To determine the relative value of various cowpea varieties as a food crop for the Virgin Islands. Virgin Islands.
- Rate of seeding Sudan grass and cowpea mixture for hay. Ala.
- Triangular fertilizer experiments with cotton, corn, and wheat, followed by cowpeas grown in rotation. Ga.
- Green manuring experiments with cowpeas to determine the effect of cowpeas when turned under on nonlegumes immediately following. (Jackson Substation) Tenn.
- Comparison of cowpeas and soy beans for hay and seed production. Mo.
- Comparison of alfalfa, sweet clover, and cowpeas and soy beans as hay crops. (Charlotte Court House Substation) Va.
- The production of cowpeas. Ark.

Dry-Land Crops.

- Varietal trials with wheat, oats, barley, rye, field peas, corn, alfalfa, sunflowers, grasses, potatoes, and other minor crops. (Burns Substation) Oreg.
- Studies at the Prescott Dry Farm, including variety tests, rate and date of seeding tests, method of planting tests, inoculation of legumes--tests designed to determine whether dry farming is feasible in this particular locality. Ariz.
- Studies at the Sulphur Spring Valley Dry Farm, including variety tests, rate and date of seeding tests, method of planting tests, inoculation of legumes-- tests designed to determine whether dry farming is feasible in this particular locality. Ariz.



FIELD CROPS--Dry-Land Crops. (Cont.)

Date and rate of seeding investigations with wheat, oats, barley, rye, field peas, corn, alfalfa, sunflowers, grasses, potatoes, and other minor crops. (Burns Substation) Oreg.

A series of crop rotation and tillage experiments. Green manure and soil moisture investigations. (Colby Substation) Kans.

Dry-land agriculture investigations. Crop rotation and tillage experiments; experiments in seed bed preparation for wheat; commercial fertilizer tests; green manures and soil moisture studies. (Fort Hays Substation) Kans.

Dry-land agriculture investigations. Experiments with crop rotation, tillage, varietal tests of corn, wheat, oats, barley, and methods of planting milo. (Garden City Substation) Kans.

Dry land crops rotation and tillage methods experiments. (North Platte Substation) Nebr.

Dry land rotation and tillage experiments.--To determine the proper rotation and crop sequence, and the most desirable tillage methods for farming in western North Dakota. (Dickinson and Hettinger Substations) N. Dak.

Miscellaneous crops on dry land in the Yellowstone Valley. (Huntley Substation) Mont.

Dry farming investigations in Northeastern New Mexico. (P) N. Mex.

Miscellaneous field studies, including dry-farm investigations to investigate crops suited to dry farming in high altitudes. Utah.

Investigations at Dry-Farm Stations at Widtsoe and Kawab. Utah.

Nephi dry farm substation, with the following subprojects: (a) Cereal breeding, (b) plowing and cultural tests, (c) cropping experiments, (d) fertility tests, (e) rotations, (f) varietal tests, (g) forage crop tests, (h) miscellaneous tests, (i) time of plowing and seedbed preparation. Utah.

FIELD CROPS--Emmer.

Variety testing, breeding, acclimatization, and cultural studies of small grains.--To improve the quality and yield of small grains, including winter wheat, oats, spring wheat, rye, winter barley, and winter emmer. Nebr.

A study of the performance of different varieties of spring wheat, barley, and emmer and their adaptation to northern and central Illinois conditions. Ill.

Varietal experiments with oats and emmer.--To determine what varieties and groups of oats yield most in this locality. (Dickinson Substation) N.Dak.

Field Beans.

Bean breeding (field beans). Mich.

Breeding field and garden beans for disease resistance. N.Y.Cornell.

Varietal testing and field bean breeding work. Mich.

Beans--over-State varietal test (field beans). Mich.

Variety tests with beans. Miss.

Variety test of field beans. (Judith Basin Substation) Mont.

Field and garden bean and pea investigations. Variety tests. (Aberdeen Substation) Idaho.

Field bean varieties in the Gallatin Valley. Mont.

Field bean varieties on dry land in the Yellowstone Valley. (Huntley Substation) Mont.

Beans--cultural work (field beans). Mich.

Field and garden pea and bean investigations. (Aberdeen Substation) Idaho.

Studies in the classification of farm crops, including field beans, field peas, oats, barley, and millet varieties. Minn.

Effect of variation in local day length on beans and sweet potatoes.--To learn the importance of variation in day length and consequently of planting season on economic crops in the tropics. Porto Rico.

FIELD CROPS--Field Peas.

Field and garden pea investigations. Breeding and improvement.	Idaho.
Breeding of field and canning peas: (a) Field and canning peas, (b) peas for Northern Wisconsin.	Wis.
Variety tests with peas.	Miss.
Variety test of field peas.--To determine the relative value of varieties of field peas for forage and seed production. (Dickinson Substation)	N. Dak.
Field and garden pea and bean investigations. Variety tests. (Aberdeen Substation)	Idaho.
Variety test of field peas, soy beans, vetch, and serradella. North Central Substation, Grand Rapids)	Minn.
Cereals: Varietal trials with barley, wheat, oats, peas, flax, and rye. (Union Substation)	Oreg.
Varietal trials, including wheat, barley, oats, field peas, corn, and potatoes. (Moro and Hood River Substations)	Oreg.
Varietal experiments with winter wheat and barley, spring wheat, barley, oats, and field peas. (Sandpoint Substation)	Idaho.
Field pea varieties in the Gallatin Valley.	Mont.
Field pea varieties in the Judith Basin. (Judith Basin Sub- station)	Mont.
Field pea varieties in northern Montana. (North Montana Sub- station)	Mont.
Field and garden pea investigations.--To determine the varieties best adapted to irrigated and dry lands. (High Altitude Sub- station)	Idaho.
Field peas.--Variety tests and cultural methods adaptable to North Dakota.	N. Dak.
Field and garden pea investigations. Cultural experiments.	Idaho.
Vetch and Austrian winter peas.--Time and rate of seeding.	Ala.
Rate of planting peas and oats. (Sandpoint Substation)	Idaho.



FIELD CROPS--Field Peas. (Cont.)

Garden and field pea experiment to determine time of planting and best varieties to grow.	N.Mex.
Field peas in the Judith Basin crop rotation. (Judith Basin Substation)	Mont.
Value of the various pea varieties as nurse crops for alfalfa. (Aberdeen Substation)	Idaho.
Cause of "rogues" in peas. (Ashland Substation)	Wis.
Field and garden pea investigations. Classification studies.	Idaho.
Studies in the classification of farm crops, including field beans, field peas, oats, barley, and millet varieties.	Minn.
Field peas - grain mixtures for hay in the Judith Basin. (Judith Basin Substation)	Mont.
Field peas - grain mixtures for hay in northern Montana. (North Montana Substation)	Mont.
Tests of peas and clovers.--To ascertain the value of these legumes for Alaska and how best to grow them. (Fairbanks and Matanuska Substations)	Alaska.
Mixed oats and Canada field peas in a rotation with manure v. fertilizer.	R.I.
Miscellaneous forage crops and field peas.	Mich.

Flax.

Investigations with flax: (a) Flax breeding, (b) cultural practice, (c) economic importance of flax compared with cereals, and (d) use of flax as a nurse crop.	Wis.
Flax--breeding and cultural work.	Mich.
The development of wilt-resistant flax.	Minn.
Flax varieties in the Gallatin Valley.	Mont.
Varietal experiments with flax.--To find what varieties are best adapted to this section of the State. (Dickinson Substation)	N.Dak.

FIELD CROPS--Flax. (Cont.)

Flax varieties in the Judith Basin. (Judith Basin Substation)	Mont.
Cereals: Varietal trials with barley, wheat, oats, peas, flax, and rye. (Union Substation)	Oreg.
Methods of seed bed preparation for flax.	Minn.
Rates and dates of seeding flax. (Crookston Substation)	Minn.
Flax tillage and date of seeding experiment.--(a) To determine the relative value of corn and wheat land for growing flax, (b) to compare different methods of packing the ground for flax production on spring plowing, and (c) to determine the best date for seeding flax. (Dickinson Substation)	N. Dak.
Flax investigations.--(a) To determine the best methods for cropping flax on old land through means of crop rotation, (b) to develop new and better wilt resistant and higher yielding varieties of flax, (c) to determine methods of tillage in preparing land for flax, designed to effectively destroy weeds.	N. Dak.
Value of flax for new land. (Ashland Substation)	Wis.
Flax on dry land in the Yellowstone Valley. (Huntley Substation)	Mont.
Flax in irrigated rotation in the Yellowstone Valley. (Huntley Substation)	Mont.
Flax-wheat mixture experiment.--To determine whether flax and wheat sown together will return a greater profit than either crop sown alone. (Dickinson Substation)	N. Dak.
Flax-wheat mixtures under irrigation.	Mont.
Flax-spring wheat mixtures in the Judith Basin. (Judith Basin Substation)	Mont.
Flax in the Judith Basin crop rotation. (Judith Basin Substation)	Mont.
Flax in northern Montana crop rotations. (North Montana Substation)	Mont.
Flax retting.	Mich.

FIELD CROPS--Forage Crops.

- Crop breeding, including cereals, cotton, and forage crops. Ga.
- Breeding cereals and forage crops; and finding best varieties for yield and disease resistance. S.Dak.
- Varietal tests of cereal and forage crops, (Tribune and Colby Substations) Kans.
- Forage crops— over-State variety testing. Mich.
- Varietal trials of small grains, corn, and forage crops.  
Uniform rust nursery. (Crookston Substation) Minn.
- Studies of varieties, culture, and improvement of forage crops, such as sorghums and grasses. Ariz.
- Forage crop investigations: Varietal test of forage sorghums, alfalfa, millet, beans, and peas; time, rate, and method of seeding tests; time of harvesting tests; and tests of pasture crops. (Fort Hays Substation) Kans.
- Methods of seeding cereal and forage crops. (Tribune Substation) Kans.
- Tests of different forage crops at Churchville and Alfred, N.Y. N.Y.Cornell
- Tests of crops, species, and varieties as to value for  
soiling crops. (Astoria Substation) Oreg.
- Effect of fertilizers on hay and seed production. Oreg.
- Recording yields of alfalfa, peas, and barley, corn, and wheat after having received an application of different fertilizers. (Union Substation) Oreg.
- Forage crop investigations.--To determine the yielding ability and adaptation of the various forage crops when seeded alone and in mixtures for hay. Ill.
- To determine the best field practices for handling various forage crops, both for production of forage and production of seed. Wash.
- Forage crop investigations, including an extensive set of annual forage crops compared as to yield, date of seeding, rates of seeding and methods of seeding; also a study of alfalfa from seed procured from different sources. Nebr.
- Annual forage crops.--To determine the adaptability of annual forage crops, best cultural methods, and dates and rates of seeding. N.Dak.



FIELD CROPS--Forage Crops. (Cont.)

- Biennial and perennial forage crops.--The adaptability and best methods of culture of the biennial and perennial legumes and of the perennial grasses to the various soil types and climatic conditions of North Dakota. N. Dak.
- Comparative test with forage crops and grasses. S. C.
- Forage crop investigations.--To determine the forage crops best suited to Guam conditions and best cultural methods. Guam.
- Studies of various forage plants suited to coastal plains soils. (Coastal Plains Substation) Miss.
- Forage investigations.--(a) Grasses and legumes for hay and seed, (b) cultural tests with alfalfa, (c) orchard grass selection and improvement, (d) introduction and testing of miscellaneous forage crops, and (e) seed introduction. Idaho.
- Combinations of corn and other crops for forage uses. Ohio.
- Commercial fields of grain and forage. (North Montana Substation) Mont.
- Tests with imported grasses and forage plants. S. C.
- Introduction and testing of miscellaneous forage crops. Idaho.
- The introduction and testing of such crops as flax, buckwheat, sunflowers, corn, etc. for the production of grain or forage. (High Altitude Substation) Idaho.
- Introduction and trial of new forage plants.--To include the introduction and trial on small plat areas of new plants which may prove valuable for hay, pasture, silage, or other forms of roughage for stock. Testing of some of the most promising of these new plants. Fla.
- Forage crop rotations in northern Montana. (North Montana Substation) Mont.
- A study of the adaptation and economic value of three forage crops not commonly grown in Pennsylvania. Pa.
- To test and determine the relative value of different forage crops under Virgin Islands conditions. Virgin Islands.
- Nursery trials of miscellaneous forage crops. Oreg.
- Miscellaneous forage crop nursery and demonstrations. Mont.

FIELD CROPS--Forage Crops. (Cont.)

- Experiments in forage, green manure, and winter cover crops.--  
To determine the best use of rye, winter vetch, sweet  
clover, the common clovers, and alfalfa, for forage, green  
manures, and winter cover crop purposes. Md.
- A study of some of the annual forage crops with special refer-  
ence to yields of dry matter and chemical composition. Wyo.
- A comparison of nine forage crops planted during the last of  
July. R.I.
- Comparison of forage crops for roughage production in the  
mountain section. N.C.
- Miscellaneous forage crops and field peas. Mich.
- Forage and permanent pasture crops. (Holly Springs Substation) Miss.
- Forage, truck, and field crop trials. (Everglades Substation,  
Belle Glade) Fla.
- Forage crops experiment with miscellaneous crops. (Lightfoot  
Substation) Va.
- Grass and forage plant garden.--To try out grasses and forage  
plants to ascertain their adaptability for range and pasture  
requirements. (Berkeley Substation) Calif.
- Forage investigations; Seed production. Idaho
- Forage Crops. W.Va.
- Forage crop tests. (Raymond Substation) Miss.
- Forage investigations. (Waterville and Irrigation Substations) Wash.

Grasses, General.

- Improvement of grasses and legumes by plant selection and  
artificial breeding. (North Central Substation, Grand Rapids) Minn.
- Development of a soiling crop system for summer soiling for dairy  
cows. (Astoria Substation) Oreg.
- Testing varieties of grasses and clovers both for forage and for  
hay as to their adaptability to local climate and soil condi-  
tions. Miss.

FIELD CROPS--Grasses, General. (Cont.)

- Variety trials of various farm crops, including corn, cotton, soy beans, grasses, clovers, and lespedezas. (Jackson, Columbia, and Crossville Substations) Tenn.
- Variety test of perennial grasses. (North Central Substation, Grand Rapids) Minn.
- Variety test of grasses in the Judith Basin. (Judith Basin Substation) Mont.
- Varieties of grasses in northern Montana. (North Montana Substation) Mont.
- To determine the best varieties of grasses and legumes for the production of forage and the most successful cultural practice. (High Altitude Substation) Idaho
- Studies of varieties, culture, and improvement of forage crops, such as sorghums, and grasses. Ariz.
- Grass and forage plant garden.--To try out grasses and forage plants to ascertain their adaptability for range and pasture requirements. (Berkeley Substation) Calif.
- A study of the adaptability of various kinds of lawn grasses to Wisconsin conditions, and the best methods of handling them. Wis.
- A comparison of ten meadow grasses as regards yields, quality, and permanency. Ohio
- Perennial grasses - seed and hay yield. A comparison of the seed and hay yield of perennial grasses adapted to the region. (Dickinson Substation) N.Dak.
- Dates of grass seeding experiment. (Martinsville Substation) Va.
- Date-of-seeding experiments with grasses. (Columbia Substation) Tenn.
- Fertilizer tests with grass. (Staunton and Martinsville Substations) Va.
- Meadow and pasture project. Commercial fertilizers on grass mixtures. (North Central Substation, Grand Rapids) Minn.
- Fertilizer experiments with Napier, and Guatemala grasses and Japanese cane.--To determine the effect of local lime, barnyard manure, and the combination of the two, on the yield of Napier and Guatemala grasses and Japanese cane. Guam.



FIELD CROPS--Grasses, General. (Cont.)

Fertilizer needs of grasses in nonmanure rotations.	R.I.
Rotation and fertilizer experiments with corn, sweet potatoes, peanuts, and Napier grass.--To determine the production of corn, sweet potatoes, and peanuts in rotation, using various forms of commercial fertilizers and lime and also the best method of fertilizing Napier grass.	Fla.
Lawns.--Fertilization, rate of seeding, removal and nonremoval of clippings, shade and nonshade tolerance, organic reserves in the roots.	Ohio
Lawn and golf grasses. Different fertilizer treatment as influencing especially the soil reaction and weed growth.	R.I.
Lawn-grass mixtures sold in New York.	N.Y. State.
Turf construction and maintenance.	Minn.
Experiments with orchard grass and clovers.	Ark.
Grass and legume mixtures.	Minn.
Pure and mixed cultures of legumes and grasses for hay.	Mont.
Forage investigations.--(a) Grasses and legumes for hay and seed, (b) cultural tests with alfalfa, (c) orchard grass selection and improvement, (d) introduction and testing of miscellaneous forage crops, and (e) seed introduction.	Idaho
Grasses and legumes for hay and seed.	Idaho
Grass seed production. (Sandpoint Substation)	Idaho
Grasses and clover for forage and permanent pasture, including Bermuda grass and bur and crimson clover. (Holly Springs Substation)	Miss.
Pasture trials with grasses and legume mixtures on hill lands and lower lands.	Oreg.
Comparative test with forage crops and grasses.	S.C.
Tests with imported grasses and forage plants.	S.C.
Nursery trials with grasses for forage and seed production and disease resistance.	Oreg.
Plot trials with grasses for forage and seed production.	Oreg.

FIELD CROPS--Grasses, General. (Cont.)

Orchard grass selection and improvement.	Idaho
Improvement of orchard grass ( <u>Cymodon dactylon</u> ).	Ky.
Variations in orchard grass with a view to selecting better strains.	Va.
Factors influencing the propagation and growth of selected strains of creeping bent grasses.	N.J.
Napier grass breeding, to develop a high yielding strain.	Fla.
Italian rye grass as green manure.	R.I.
Grasses and grass-like plants: Economic study of.	Ariz.
To prepare a manual of the wild and cultivated grasses of Maryland by which they can be identified and their economic value determined.	Md.
Alfalfa substitutes: Clovers and grasses. (Hermiston Substation)	Oreg.

FIELD CROPS--Hay.

Hay and pasture investigations.	Iowa
Emergency hay crops and supplementary pastures.	Wis.
Forage crop investigations.--Study of grain hay at different stages of cutting.	Oreg.
Hay tests of forage plants alone and in mixture.	W.Va.
Vetch and grain mixture for hay.	Ala.
Vetches and melilotus, with and without oats, for hay.	Ala.
Clover and vetch in oat mixtures for hay, to be followed by corn.	Ala.
Comparison of alfalfa, sweet clover, cowpeas, and soy beans as hay crops. (Charlotte Court House Substation)	Va.
Farm crops production investigations. Hay crops, non-legumes. (Northeast Substation, Duluth)	Minn.
Moisture changes in stored hay.	Oreg.

Hemp.

Hemp.--A trial of varieties. Dates of planting and water requirements. (Davis Substation)	Calif.
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Horse Beans.

Cultural trials with vetches and related plants and with horse beans.	Oreg.
Nursery trials with vetches and related plants, new vetch varieties, and horsebean varieties.	Oreg.

Irrigation Crops.

Field crop investigations under both dry farming and irrigation. Varietal trials with wheat, oats, barley, rye, field peas, corn, alfalfa, sunflowers, grasses, potatoes, and other minor crops. (Burns Substation)	Oreg.
Field crop investigations under both dry farming and irrigation. Date and rate of seeding investigations with wheat, oats, barley, rye field peas, corn, alfalfa, sunflowers, grasses, potatoes and other minor crops. (Burns Substation)	Oreg.
Plat variation test on irrigated land. (Huntley Substation)	Mont.



FIELD CROPS--Irrigation Crops. (Cont.)

Experiments in irrigation agriculture. Experiments with crop rotation, commercial fertilizers, pasture grasses, alfalfa irrigation, winter irrigation of various crops, and the use of alfalfa as a pasture for hogs. (Garden City Substation) Kans.

Maximum crop production test on irrigated land. (Huntley Substation) Mont.

Commercial fields of grain and forage under irrigation. (Huntley Substation) Mont.

Irrigation rotation experiments. (Scottsbluff Substation) Nebr.

Johnson Grass.

The inheritance in root crosses between Sudan grass and Johnson grass.--To determine the mode of inheritance of the root systems in crosses between Johnson grass and Sudan grass. (A) Ga.

Johnson grass eradication.--To determine a practical method of eradicating Johnson grass. N.Mex.

Kafir. (See also Sorghums p. 143)

A study of inheritance in black-hulled white kafir. (A) Okla.

Inheritance of head characters in kafir. (P) Tex.

Cultural experiments with cotton, kafir, and oats. Okla.

Rate of planting kafir.--To determine the best rate to use in planting kafir. Okla.

Cultural experiments with kafir corn.--To find the effect of weeds and soil mulches on yield of kafir corn. Okla.

Kudzu.

Kudzu experiments. Conn.Storrs

Kudzu as (a) pasture crop, (b) soil-improving crop, and (c) soil-holding crop. (Columbia Substation) Tenn.

Value of kudzu for pasture. Ga.

Kudzu multiplication for hay. Ala.

FIELD CROPS--Legumes, General. (See also specific legumes)

- Improvement of grasses and legumes by plant selection and artificial breeding. (North Central Substation, Grand Rapids) Minn.
- The culture and improvement of legumes adapted to the southwest. Ariz.
- Varietal investigations of cereals and large-seeded legumes. (Irrigation Substation) Wash.
- Orchard cover crops. Varietal tests of legumes for southern Oregon conditions. (Talent Substation) Oreg.
- Comparison trials with different legumes. Oreg.
- To determine the best varieties of grasses and legumes for the production of forage and the most successful cultural practice. (High Altitude Substation) Idaho.
- Comparison of different amounts of rock phosphate with different legumes. Ill.
- Source of phosphorus tests for winter legumes. Ala.
- The effect of lime on legumes. Ark.
- Use of sulphur, lime, gypsum, on leguminous crops. Idaho.
- Fertility experiments with various legumes. A comparative study, including reseeding ability. (Columbia Substation) Tenn.
- Methods and date of planting legumes. (Sandpoint Substation) Idaho.
- Use of legumes in building up soil fertility. (Sandpoint Substation) Idaho.
- Legumes in relation to soil fertility. (Delta Substation) Miss.
- Legume investigations. Soil improvements. (Berkeley, Meloland, Kearney Park, and Davis Substations) Calif.
- The comparative value of different legumes as soil improvers when used in rotation with cotton and corn. S. C.
- Optimum and critical reaction for legume nutrition--certain acid soils. Oreg.
- Adaptation of acid-resistant legumes.--Determination of the value as feed and as a green manure of certain more or less acid-resistant legumes which are, at present, not commonly grown in the State. Ill.

FIELD CROPS--Legumes, General. (Cont.)

Cover crop efficiency test.--To determine the comparative efficiency of various legumes as cover crops.	Guam.
Experiments with leguminous cover crops.--To determine the relative values of different legumes as cover crops in the Virgin Islands, with special reference to their ability to suppress Bermuda grass from sugar cane fields and other cultural crops.	Virgin Islands
Fixation and distribution of nitrogen and organic matter in the various legumes.	Wash.
Winter legumes as cover crops and green manure preceding human food crops.	R.I.
A study of miscellaneous legumes.	Ark.
Winter legume studies.	Fla.
Short winter legume test.	Ala.
Effect of companion cropping of corn with legumes.	S.C.
Grass and legume mixtures.	Minn.
Pasture trials with grasses and legume mixtures on hill lands and lower lands.	Oreg.
Pure and mixed cultures of legumes and grasses for hay.	Mont.
Forage investigations.--(a) Grasses and legumes for hay and seed, (b) Cultural tests with alfalfa, (c) Orchard grass selection and improvement, (d) Introduction and testing of miscellaneous forage crops, (e) Seed introduction.	Idaho.
Legumes and grasses for hay and seed.	Idaho.
Legumes with small grains.	Ark.
Test of legumes to seed in small grains.	Conn.Storrs
Various legumes for hay and seed. (Sandpoint Substation)	Idaho.
Effect of legumes upon subsequent crops under varying conditions.	Ark.
Hard seeds in legumes.	N.Y.State



FIELD CROPS--Legumes, General. (Cont.)

- A study of the hard seed in vetch and other legumes. N.Y. Cornell
- Value of hard seeds in legumes and methods of treatment. Mont.
- Leguminous forage crops. Experiments to introduce and test leguminous plants as feed for animals and as a source of nitrogen. Porto Rico
- Comparison of hardiness and yield of winter legumes. N.C.
- Prevention of winter injury of leguminous hay crops in northern States. (P) Wis.
- Peanuts, sorghums, legumes.--To keep in timely touch with subjects that are constantly coming up, not of sufficient importance for separate projects. Okla.
- Farm crop production investigations. Legumes. (Northeast Sub-station, Duluth) Minn.

Legume Inoculation.

- Legume inoculations. Colo.
- Inoculation experiments with legumes. Wis.
- Experiments in soil inoculation. N.J.
- Factors influencing the inoculation of legumes.--To determine the causes of variation in nodule production and nitrogen fixation by legumes. Ill.
- Effect of various factors on inoculation by legume bacteria. Wash.
- Cross inoculation studies of legumes. Investigation of some wild legumes to determine source of infection for cultivated varieties. Ill.
- Studies in Rhizobium leguminosarum--morphological, physiological and cultural studies of organisms from various legumes. (A) Iowa.
- Studies on the longevity of B. radicicola in the soil. After the crop is removed how long do the bacteria live in the soil and retain the ability to inoculate the next crops? Mo.

FIELD CROPS--Legume Inoculation. (Cont.)

Effect of inoculation of soy bean seed on the nitrogen content of the plant.	Wis.
Effect of inoculation upon the growth of various legumes.	Wis.
Legume culture work.	Wash.
Legume culture preparation.	Idaho.
Production and distribution of bacteria for legumes.	Mo.
The value of commercial cultures for the inoculation of legumes.	Iowa.

Lespedeza.

Lespedeza improvement by selection and trial of strains and varieties.	Tenn.
Variety trials of cotton, soy beans, and lespedeza. (Murfreesboro Substation)	Tenn.
Varietal trials of corn, wheat, oats, lespedeza, and soy beans.	Tenn.
Variety trials of various farm crops, including corn, cotton, soy beans, grasses, clovers, and lespedezas. (Crossville, Columbia, and Jackson Substations)	Tenn.
Lespedeza fertilizer experiments.	Ala.

Mangels.

Variety tests of mangel wurzels. (Northwest Substation, Crookston)	Minn.
Influence of mangels on following crops.	R.I.

Millets.

Variety test of millets. (North Central Substation, Grand Rapids)	Minn.
Varietal experiments with proso millet.--To determine the value of proso millet as a grain crop in comparison with other grains, and to determine the best varieties for this locality. (Dickinson Substation)	N. Dak.
Millets, sorghos, and Sudan grass in the Judith Basin. (Judith Basin Substation)	Mont.

FIELD CROPS--Millets. (Cont.)

Millet, sorghos and Sudan grass in northern Montana. (Northern Montana Substation)	Mont.
Testing millets for yields of hay.	Va.
Annual forage crops--millets, Sudan grass, and other sorghums.	Ohio.
To test the relative forage yields of the annual grasses, millet, sorghum, and sudan grass. (Dickinson Substation)	N.Dak.
Pearl and Japanese millets as forage crops.	R.I.
Studies in the classification of farm crops, including field beans, field peas, oats, barley, and millet varieties.	Minn.

Oats.

Mendelian studies with wheat and oats.	N.Y.Cornell
Studies of inheritance in oats. (A)	Pa.
A genetic study of aberrant and false wild types in Kanota oats. (A)	Kans.
Inheritance in a cross of <u>Avena sterilis algeriensis</u> and <u>Avena nuda inermis</u> .	Ohio.
Oat breeding.	Mich.
Breeding Oats.	N.Y.Cornell.
Oat breeding.--To create earlier and better varieties for Alaska.	Alaska.
Breeding with oats and wheat. (Aroostook Farm Substation)	Maine.
Cereals: Breeding and selection of pure strains of wheat, barley, oats and rye. (Union Substation)	Oreg.
Breeding experiments with wheat, oats, corn and sorghums.	Kans.
Oat, rye, and barley breeding.	Wis.
Improvement of oats.	Ill.
Oat improvement.	Pa.
Oat investigations and oat improvement.	Tex.
Production of improved varieties of oats.	Minn.



FIELD CROPS--Oats. (Cont.)

Improvement of oats through breeding and selection. (North Platte Substation)	Nebr.
Oats: Selection and breeding. (Baton Rouge Substation)	La.
Pure line studies with oats.	Iowa.
The development of varieties of oats resistant to black stem rust.	Minn.
Studies of varietal resistance of wheat, barley, rye, and oats to root and culm rots.	Minn.
Barley and oats - testing varieties and hybrids.--To determine possible barley and oats varieties or selections resistant to disease and promising for yield.	N. Dak.
Oat production: Variety studies, selection and breeding, cultural methods.	Ark.
A study of oat varieties with a view to their improvement.	Pa.
Oats. Variety testing and head selection for improvement.	Wyo.
To improve the quality and yield of small grains, including winter wheat, oats, spring wheat, rye, winter barley and winter emmer.	Nebr.
Variety test of oats. (North Central Substation, Grand Rapids)	Minn.
Oat variety test.	S.C.
Oat breeding investigations. Variety studies with oats.	Iowa.
Variety tests with oats. (Appomattox, Bowling Green, Chatham, Lightfoot, Martinsville, Staunton, and Charlotte Court House Substations)	Va.
Variety tests with oats, wheat and barley. (Aberdeen and Sandpoint Substations)	Idaho.
Varietal trials of corn, wheat, oats, lespedeza, and soy beans.	Tenn.
Crop variety tests. Corn, wheat, oats, and soy beans.	Del.
Varietal trials of winter and spring grains, including wheats, oats, and barley.	Oreg.
Small grain variety tests.--Testing of standard varieties of wheat, oats, rye, and barley. (Statesville Substation)	N.C.
Varietal experiments with winter wheat and barley, spring wheat, barley, oats, and field peas. (Sandpoint Substation)	Idaho.

FIELD CROPS--Oats. (Cont.)

- Cereals: (2) Varietal trials with barley, wheat, oats, peas, flax, and rye. (Union Substation) Oreg.
- To test new and standard varieties of spring wheat, oats, barley, and winter rye, as to yielding capacity, resistance to disease, and trade value as measured by milling and baking tests. N. Dak.
- Varietal trials. Including wheat, barley, oats, field peas, corn, and potatoes. (Moro and Hood River Substations) Oreg.
- Oats. A test of common varieties and of pure-line strains for yield, quality, and adaptability. Ohio.
- Variety test of oats.--To determine the yields of different varieties of oats as shown by competitive tests. Okla.
- Variety tests and selections of hardy strains of winter oats. Md.
- Oats variety tests.--To learn which are the best varieties for general planting in Alaska. (Fairbanks, Matanuska and Rampart Substations) Alaska.
- Variety tests with wheat, oats, barley, and miscellaneous grains under high altitude conditions. (High Altitude Substation) Idaho.
- Varieties of soy beans and soy beans v. oats in rotation. Pa.
- A study of the performance of different varieties of oats and their adaptation to the several sections of Illinois. Ill.
- A study of important varieties of oats for Missouri conditions. Mo.
- Oat varieties in the Gallatin Valley. Mont.
- Oat varieties in the Judith Basin: (Judith Basin Substation) Mont.
- Oat varieties in northern Montana. (North Montana Substation) Mont.
- Oat varieties for peat soils. (Sandpoint Substation) Idaho.
- Spring oats variety test.--To determine the best variety of oats for spring planting in the mountains where the winter climate is too severe for fall-sown oats. (Swannanoa Substation) N.C.
- Varietal experiments with oats and emmer.--To determine what varieties and groups of oats yield most in this locality. (Dickinson Substation) N.Dak.

FIELD CROPS--Oats. (Cont.)

Variety tests and methods of seeding, also a study of the origin of false wild oats.	W. Va.
Variety trials and cultural requirements with small grains.-- Wheat, oats, and barley in rows to determine the relative value of varieties of cereals for California conditions, especially with regard to yield. (Davis Substation)	Calif.
Variety tests and cultural experiments with oats.	Va.
The culture and improvement of small grains, including wheat, oats, barley, rye, etc.	Ariz.
General cultural studies with oats.	Iowa.
Cultural experiments with cotton, kafir, and oats.	Okla.
Different methods of seeding oats.	Ala.
Oats: A study of time, rate, and method of seeding.	Ohio.
Date-of-planting experiments with wheat, oats, and barley; also, cotton and corn. (Jackson Substation)	Tenn.
Comparison of time of seeding two varieties of oats after cotton in the Coastal Plain section.	N.C.
Rates of seeding oats. (Northwest Substation, Crookston)	Minn.
Rate of planting oats. (High Altitude Substation)	Idaho.
Rate of planting peas and oats. (Sandpoint Substation)	Idaho.
A study of the effect of different rates and dates of seeding oats.	N.C.
Rate and date of seeding oats, wheat, barley, and rye.	Minn.
Source of phosphate experiments with cotton, corn, and oats in rotation.	Ala.
Mixed oats and Canada field peas in a rotation with manure v. fertilizer.	R.I.
Continuous cropping plats of oats, barley, and wheat. Two tons manure each year per acre. (West Central Substation, Morris)	Minn.
Oats in the Judith Basin crop rotation. (Judith Basin Substation)	Mont.



FIELD CROPS--Oats. (Cont.)

- Oats in northern Montana crop rotations. (North Montana Substation) Mont.
- Oats in irrigated rotations in the Yellowstone Valley. (Huntley Substation) Mont.
- Oats on dry land in the Yellowstone Valley. (Huntley Substation) Mont.
- Oat production and storage investigations. Seed oat studies. Iowa.
- Effect of stage of maturity at harvest upon the germination power of oats, wheat, and barley seed. Wyo.
- Do seed oats deteriorate when sown continuously in this latitude? Conn.Storrs.
- Classification trials with oats. Oreg.
- Studies in the classification of farm crops, including field beans, field peas, oats, barley, and millet varieties. Minn.
- Vetches and melilotus, with and without oats, for hay. Ala.

Pastures.

- Pasture investigations. Del.
- Pasture investigations. (Sandpoint Substation) Idaho.
- Pasture experiments. (South Mississippi Substation) Miss.
- Pasture experiments. Pa.
- Hay and pasture investigations. Iowa.
- An ecological study of pastures. Tex.
- Ecological study of pasture vegetation. Mass.
- Ecologic and economic study of New Jersey pastures. (P) N.J.
- Pasture improvement.--The effects of fertilizer treatments measured by grazing with cattle. Conn. Storrs.
- Forage and permanent pasture crops. (Holly Springs Substation) Miss.
- Permanent pasture studies on upland soil. (P) Ala.
- Pasture work. Permanent pastures: Making of a permanent pasture by determining the combination of plants best suited to obtain a long period of uniform grazing, the cost and method of seeding, and time necessary to make a permanent pasture under local conditions. (Starkville, Holly Springs, and Raymond Substas.) Miss.

FIELD CROPS--Pastures. (Cont.)

- Pasture work: Temporary pastures: To work out a system of temporary pasture plants that will furnish continual grazing throughout the year as well as for summer grazing, principally for swine. Miss.
- Emergency hay crops, and supplementary pastures. Wis.
- Pasture experiments: Plots of pasture grasses, which receive different fertilizer treatments and from which the grass is clipped at stated intervals, then weighed and samples analyzed to ascertain relative value of grass from different plots. Va.
- Grasses and clover for forage and permanent pasture. Including Bermuda grass and bur and crimson clover. (Holly Springs Substation) Miss.
- Variety tests of pasture grasses. (Hermiston Substation) Oreg.
- Studies of pastures and pasture grasses for different sections of the State. Md.
- Pasture experiments with sweet clover and other grasses. Mich.
- The utilization of sweet clover as pasture for beef cattle. (Northwest Substation, Crookston) Minn.
- A study of the forage on the pastures and ranges of California. --Maintenance of forage supply in the mountain regions. (Sierra Natural Forest Coast Ranges Substations) Calif.
- Pasture and meadow crops for Arkansas. Ark.
- Pasture and lawn-grass studies.--To determine which are best for Florida. Fla.
- Carrying capacity of irrigated pastures in the Yellowstone Valley. (Huntley Substation) Mont.
- Production cost and carrying capacity of grass pastures in western Nevada. (P) Nev.
- The carrying capacity of the pastures on the Ranch Experiment Station in Sutton-Edwards Counties. Tex.
- Composition and carrying capacity of veterinary pastures, north of campus, Berkeley. (Berkeley Hills and Strawberry Canon Substations) Calif.



FIELD CROPS--Pastures. (Cont.)

- Pasture yields--nutrient content throughout season; areas necessary for dairy maintenance and production. Vt.
- Revegetation and maintenance of California foothill range lands. Calif.
- Grazing trial.--To determine the carrying capacity of pasture grasses and the most economic season for and manner of grazing pastures. N. Dak.
- An experiment with hay on neglected hay lands. (P) N.H.
- An experiment with legumes on neglected hay lands. (P) N.H.
- Triangle soil test on pasture land. Conn. Storrs.
- Pasture experiment.--To compare the effect of different fertilizers on a pasture grass mixture. Ind.
- Pasture investigations: the effects of various fertilizing materials on the yield, composition, and character of the plant growth. Iowa.
- Barnyard manure for irrigated pastures in the Yellowstone Valley. (Huntley Substation) Mont.
- Pasture yields for lambs. Oreg.
- Pasture experiments with sweet clover.--To ascertain the value of sweet clover as pasture for dairy cows. N.Mex.
- A study of pasture values and pasture methods for horses, cattle, sheep, and swine. Kans.

Peanuts.

- The study of characters and improvement of the peanut. Tex.
- Breeding work with peanuts. N.C.
- Peanut breeding, to increase the yield of nuts and content of oil through selective breeding. Fla.
- Crop improvement by mass and individual plant selection, including small grains, corn, grain sorghums, and peanuts. Tex.
- Selection work with peanuts. (Holland Substation) Va.
- Variety tests with peanuts. S.C.
- Variety tests with peanuts. (Holland Substation) Va.



FIELD CROPS--Peanuts. (Cont.)

Fertilizer experiments with peanuts. (Holland Substation)	Va.
Sources of phosphorus in fertilizers for peanuts. (Holland Substation)	Va.
Rotation and fertilizer experiments with corn, sweet potatoes, peanuts and Napier grass, to determine the production of corn, sweet potatoes and peanuts in rotation, using various forms of commercial fertilizers and lime, and also the best method of fertilizing Napier grass.	Fla.
Culture and rate of seeding peanuts.	N.C.
Peanuts, sorghums, legumes.--To keep in timely touch with subjects that are constantly coming up, not of sufficient importance for separate projects.	Okla.
The production of peanuts.	Ark.

Popcorn.

Popcorn--variety character record and ear row work.	Mich.
The popping of popcorn.	N.Y.

Potatoes.

Genetics and Breeding.

Potato breeding.	Utah.
Potato breeding.	Wash.
Potato breeding.--Sexual breeding--A study of the inheritance of characters in the potato.	Minn.
Potato breeding work.--To create varieties suited to Alaska. (Sitka Substation)	Alaska.
Potato breeding: A study of varieties and seedlings for their identification, economic value, resistance to "mosaic dwarf" and "hopper burn"; place effect on the productivity of potato seed stock; factors influencing the dropping of flowers. (Crookston, Grand Rapids, and Duluth Substations)	Minn.
Breeding work on Lookout Maintain potatoes.	S. C.
Potato improvement on dry land. (Judith Basin Substation)	Mont.
Potato Selection.	Mich.

FIELD CROPS--Potatoes. Genetics and Breeding. (Cont.)

Potato investigations. Hill selection work.	Oreg.
Hill selection of potatoes.	Pa.
Tuber-unit potato breeding. (Sandpoint Substation)	Idaho.
Tuber selection studies with potatoes.	N.Y. Cornell
Tuber-unit potato improvement. (Aberdeen Substation)	Idaho.
Selection work in Delaware late red potatoes.	Del.
A study of the production, selection and improvement of seed stock of potatoes. (P)	Mont.
Potatoes: Tests of crosses for the U.S.D.A.	R.I.
Potato investigations. Seed selection. (Northwest Substation, Crookston)	Minn.
Seed selection work with potatoes on irrigated land (pure lines.)	Mont.
The effect of selecting high- and low-yielding lines of potatoes which are apparently free from degenerative diseases.	Me.
Comparison of systems for improving potatoes.	S.Dak.
Development of a variety of potatoes resistant to late blight.	N.Y. Cornell.
Improvement of the McCormick potato.	Md.

Variety Studies.

Variety test of potatoes. (Sandpoint Substation)	Idaho.
Variety test of potatoes. (Horticultural Substation)	Mont.
Variety tests with potatoes. (Appomattox, Bowling Green, Chatham, Holland, Lightfoot, Martinsville, Staunton, and Charlotte Court House Substations)	Va.
Variety test of potatoes. (Torrington)	Wyo.
Strain trial of potatoes.	Oreg.
Potato variety test.	N.J.
Potato variety test.	W.Va.
Irish potato variety studies.	Ky.
Potato investigations. Varietal experiments. (Aberdeen Substation)	Idaho.

FIELD CROPS--Potatoes. Variety Studies. (Cont.)

- Potato investigations. Varietal experiments. (West Central Substation, Morris) (North Central Substation, Grand Rapids) (Northwest Substation, Crookston) and (Northeast Substation, Duluth) Minn.
- Potato investigations. Variety tests. W.Va.
- Truck and root crops: (3) Varietal trials with potatoes. (Union Substation) Oreg.
- Variety tests of potatoes on irrigated land. Mont.
- Variety tests of potatoes. Improvement of potatoes by selection. Wis.
- Variety testing and selection of high yielding strains of potatoes by the "tuber-unit" method. Wyo.
- Tests with strawberries and potatoes, and blight-resistant pears. (Hood River Substation) Oreg.
- Varietal trials of various market garden crops, such as Irish potatoes, sweet potatoes, kale and strawberries. Tenn.
- Varietal trials. Including wheat, barley, oats, field peas, corn, and potatoes. (Moro and Hood River Substations) Oreg.
- Potato variety tests.--To find the varieties best suited to Alaska. (Sitka Substation) Alaska.
- Variety experiments with potatoes, with special reference to a good late variety. Md.
- Tests with late potatoes - varieties, size of seed and fertility. (Ridgely Substation) Md.
- To determine the best variety of potatoes for local use. (Dickinson Substation) N.Dak.
- Varieties adapted to the Appalachian region of Virginia, also selections of promising strains by the "tuber-unit" method; fertilizer requirements; farm storage of potatoes. Cultural methods. Va.
- Testing of potato strains as to yield. (North Central Substation, Grand Rapids) Minn.
- Irish potato. Variety, culture, and fertilizer tests. (Holly Springs Substation) Miss.



FIELD CROPS--Potatoes. Cultural Studies.

Potatoes--cultural experiments.	Mich.
Potato culture experiments.	W. Va.
Cultural practices with Irish potatoes - effect on yield. (Willard Substation)	N.C.
Cultural trials for potatoes: (a) Size of piece for planting; (b) method of cutting for seed; (c) comparison of cut and uncut seed; (d) comparison of cut seed with and without land plaster; (e) time of planting; (f) depth of planting; (g) hill v. flat cultivation.	Oreg.
Methods of planting potatoes. (Northwest Substation, Crookston)	Minn.
Potato investigations. Cultivation; surface, ridged. (West Central Substation, Morris)	Minn.
Potato culture investigations. Ridging v. level culture. (Northeast Substation, Duluth)	Minn.
Ridging v. level cultivation of potatoes. (Judith Basin Substation)	Mont.
Potato culture investigations. Date of planting. (Northeast Substation; Duluth)	Minn.
Effect on tuber formation of planting main crop potatoes at different dates.	Conn.Storrs.
Date of planting potatoes.	Ohio.
Potato investigations. Time of planting. (North Central Sub- station, Grand Rapids)	Minn.
Time of planting late potatoes. (Belair, Marion, and College Park Substations)	Md.
Rate of planting potatoes. (Sandpoint Substation)	Idaho.
Potato culture investigations. Spacing of rows. (Northeast Experiment Station, Duluth)	Minn.
Distance of planting dry land potatoes. (Judith Basin Sub- station)	Mont.
Potato culture investigations. Drill v. check. (Northeast Substation, Duluth)	Minn.
Potato investigations. Thickness of planting. (North Central Substation, Grand Rapids)	Minn.

FIELD CROPS--Potatoes. Cultural Studies. (Cont.)

- Effect of the distance apart in row and of missing hills on yield and quality of potatoes. Wyo.
- Depth of planting potatoes. (West Central Substation, Morris) Minn.
- Comparison of effect of fall plowing, spring plowing, and no plowing on corn, potatoes and wheat. (Northwest Substation, Crookston) Minn.
- Potato Culture investigations. Spring v. fall plowing. (Northeast Substation, Duluth) Minn.

Seed Studies.

- Seed potato production. Wash.
- Potato seed treatment investigations. Idaho.
- Potato seed treatment investigations. Iowa.
- Effects of sun sprouting and fall greening on potato yields and storage qualities. (P) W.Va.
- Effect of nitrate of soda treatment of seed Irish potatoes.--  
Effect upon earliness and upon the first crop potatoes when they are used as seed for the last crop. N.C.
- Seed potato development. (Irrigation Substation). Wash.
- Improvement of potato seed. N.J.
- Potato seed improvement on dry land. Mont.
- Potato seed improvement on irrigated land. (Corvallis Horticultural Substation) Mont.
- A study of growth and type factors which influence the value of potatoes for seed.--To determine the effect of irrigation, cultivation, weather, roguing, and selection of tuber and vine types on the succeeding crop. N.Dak.
- Effect of size and kind of seed upon the yield of potatoes. (Torrington) Wyo.
- Studies in competition and size of potato seed piece. N.J.
- Effect of different sized portions of seed at different moisture content on the early growth of the potato plant. Wyo.
- Effect of the size and portion of seed per tuber used on the growth and yield of the potato plant. Wyo.

FIELD CROPS--Potatoes. Seed Studies. (Cont.)

- Soil type influences on the value and character of potatoes for seed purposes. N.Y. Cornell
- Environment v. potato seed selection. (Horticultural Substation) Mont.
- The effect of immaturity in potatoes for seed purposes. N.Y. Cornell
- Comparison of sprouted and good potato seed. Oreg.
- Comparison of eye and stem end upon yield of potatoes. (Sandpoint Substation) Idaho.
- Tests of sources of Irish potato seed. S.C.
- Effect of the source of seed upon the yield of potatoes. (Torrington) Wyo.
- Testing value of different sources of seed.--To determine comparative value of Maine-grown seed, second crop seed produced in the Coastal Plain and western North Carolina and seed in different stages of maturity, as the most desirable seed for the early crop of Irish potatoes in eastern North Carolina. (Willard Substation) N.C.
- Investigations with seed potatoes. A comparison of home-grown with northern-grown seed. Mo.
- A comparison of seed source stock and seed source areas of potatoes for Pennsylvania. Pa.
- Effect of climate on productiveness of the potato. A comparison of northern grown potato seed with seed grown in southern New Hampshire from the same strain. N.H.
- Potato investigations. Source-of-seed and fertilizer tests. Kans.
- Seed potato studies. (a) Seed source experiment, (b) varietal studies. Iowa.
- Comparison of yields, growth, and disease of North Dakota potatoes when used for seed in more southerly States. N.Dak.
- Experiments to determine the effect of selection within a variety and the effect of size and shape and time of seed cutting on uniformity and yield of the potato; also, to determine the relation between spent vigor and disease. (P) Me.



FIELD CROPS--Potatoes. Seed Studies. (Cont.)

Potato selection for seed purposes.--To determine (a) the value of western Nebraska seed potatoes compared with those from other regions, (b) the value of irrigated potatoes for seed purposes, (c) to study the general cultural factors influencing the production of seed potatoes, and (d) to study varieties in various parts of Nebraska.	Nebr.
Study of changes in character of sprouting of seed potatoes during the storage period. (P)	Ohio.
Effect of potatoes on following crops.	R.I.
A comparison of New Hampshire certified seed with seed from other sources.	N.H.
Irrigated v. dry-land potatoes for seed. (Huntley Substation)	Mont.
Environmental factors influencing potato seed selection on dry land.	Mont.
Environmental factors influencing potato seed selection on irrigated land.	Mont.
Potato seed certification.	N.H.
Certified v. uncertified seed potatoes.	N.H.
The value of "certified" v. "common" seed potatoes. (Jackson Substation)	Tenn.
Comparison of certified and non-certified potato seed.	S.C.
Potato culture investigations. Variation of yield within variety of certified stock (Northeast Substation, Duluth)	Minn.
Strain test work with certified Triumph seed potatoes.	La.
Physiological studies in seed potatoes.	N.J.
Cultural factors involved in the production of certified seed potatoes. (P)	Ohio.
Seed treatment materials and methods. Cereals and potatoes.	Oreg.

FIELD CROPS --Potatoes. Fertilizer Experiments.

Potato fertilizers.	N. J.
Potato investigations. Fertilizer tests. (Northwest Substation, (Crookston)	Minn.
Fertilizer tests of Irish potatoes.	S. C.
Mineral nutrient requirements of the potato plant. (A)	Md.
Soils and fertilizer investigations. Complete fertilizers on potatoes. (Northeast Substation, Duluth)	Minn.
Fertilizer needs of potatoes in non-manure rotations.	R. I.
Continuous fertilizer experiment.--To determine whether or not certain potato difficulties are associated with fertilizer practices. (Aroostook Substation)	Me.
Potato investigations. Effect of commercial fertilizer on potato yield and quality.	Oreg.
A study of the effect of varying amounts of phosphoric acid (nitrogen and potash remaining constant) on the growth and yield of potatoes.	N. J.
Fertilizer experiments designed to determine the proper combination and use of nitrogen, phosphoric acid, and potash for sweet corn and potatoes. (P)	Me.
A comparison of acid phosphate and rock phosphate for potatoes on three types of soil	N. J.
A study of the sources of nitrogen and the amount of potash, and also the amount of a so-called standard fertilizer, best suited to the growing of potatoes.	N. J.
Potash tests on potatoes.	N. H.
A study of the effect of sulphur in potato soils, potato yields, and potato diseases carried in the soil.--To determine the effects of varying amounts of sulphur on the acidity of the soil, the yield of potatoes on potato disease organisms, particularly scab, and the rate of application to control scab.	N. Dak.

FIELD CROPS - Potatoes, Fertilizer Experiments.

Spraying and dusting of potatoes.

Ohio.

To determine the effect of pressure on the protection afforded by Bordeaux mixture. Effect of number of nozzles used per row in spraying on late blight control. Degree of control of late blight obtained with different Bordeaux mixtures and Burgundy mixture.

N. H.

Spraying potatoes with Bordeaux mixture.--To determine the effect of Bordeaux mixture on the vigor of potato vines and on the yield, the effects on insects and diseases, and the number of and proper time for such applications.

N. Dak

Spraying v. dusting tests. Fruit trees and potatoes.

Oreg.

Miscellaneous.

Potato experiments. (Archer) (Worland).

Wyo.

Potato investigations.

Colo.

Sweet and Irish potato studies. (Raymond Substation)

Miss.

Potato production experiments.

Idaho.

Relation between the nature of the growth of the potato plant and yield.

Wyo.

Potato investigations. Rotation tests. (Northwest Substation, Crookston)

Minn.

Irrigation of potatoes. (Huntley Substation)

Mont.

Irrigated v. dry land potatoes. (Judith Basin Substation)

Mont.

Methods of irrigating potatoes. (Corvallis and Huntley Substations)

Mont.

Potatoes in irrigated rotations in the Yellowstone Valley. (Huntley Substation)

Mont.

Irish potato storage.--To collect notes and information on Irish potato storage and the operation of a storage house.

N. C.

A study of factors involved in the production, storage, and handling of Irish potatoes.

Ark.

Physiological and biochemical aspects of potato storage and transportation.

(A)

Md.



FIELD CROPS - Potatoes. Miscellaneous. (Cont.)

- Storing first crop of Irish potatoes in sweet potato storage house.--To determine the value of sweet potato storage house for storing first crop of Irish potatoes. (Willard Substation) N.C.
- Potato culture investigations. Warm v. cold storage of seed stock. (Northeast Substation, Duluth) Minn.
- A study of degeneracy in potatoes--rapidity-factors causing, and means of control. (A) Nebr.
- A study of the causes of deterioration in potatoes. Conn. Storrs.
- Reason for the failure of potato tubers to develop properly in parts of New Mexico. (A) N.Mex.
- Regeneration in potato tubers. (A) Md.
- Ecological factors affecting tuber, stolon, and root development in potatoes. N.Y.Cornell
- Yield of potatoes as governed by disease. (Hermiston Substation) Oreg.
- Comparison of healthy potato strains, commercial and tuber-line. (P). Me.
- Comparison of different selections of potatoes. (Sandpoint Substation) Idaho.
- Strain and source trials with potatoes, particularly to check up certification. Conn. Storrs.
- A cytological study of potato species and hybrids to determine why disease resistance of wild types and yield and quality of cultivated varieties are so difficult to combine in a new variety. (Aroostook Farm Substation) Me.
- Potato culture in central Illinois.--Variety studies, northern and home-grown seed, insects and diseases. Ill.
- Range Studies. (See also ANIMAL HUSBANDRY, Beef Cattle-Grazing and Range Experiments. p. 317)
- Range improvement. (a) Study of the ground cover under three types of grazing, (b) life history studies of the more important forage grasses, (c) meteorological factors as they effect the composition of the range, (d) re-seeding studies. Colo.
- A study of range improvement through fencing. Ariz.
- Revegetation and maintenance of California foothill range lands. Calif.
- Range reseeding. (P) Utah.
- Range survey. (P) Utah.

FIELD CROPS--Rape.

- Forage crop investigations. Seeding and cultural trials for production of rape. Oreg.
- Rape as material for silage. Iowa.
- Residual Effects of Crops. (See also Rotations. p. 131.)
- To determine the effect of cropping systems upon the production of succeeding crops. Wash.
- Effect of crops on those which follow. Minn.
- The influence of crops on those which follow. (A) R.I.
- The influence of different crops upon the growth of various crops that follow. Ind.
- The cumulative effect of cropping. (Berkeley Substation) Calif.
- A study of various crop rotations and the effect of the preceding crop upon yield. 50 tests in all. Ohio.
- Effects of certain crops on soil fertility. Plots planted to various crops and combinations of crops, followed by wheat as an indicator of the fertility. Miss.
- Investigation of the value, nature, and duration of the residuary effects of vegetable matter when applied to soils of different texture. Mich.
- A study of varietal adaptations and fertilizer requirements on Red River Valley soils. The effects of varied crop sequence. (Northwest Substation, Crookston) Minn.
- Influence of beets on following crops. R.I.
- Influence of cabbage on following crops. R.I.
- Influence of carrots on following crops. R.I.
- Effect of legumes upon subsequent crops under varying conditions. Ark.
- The comparative after effects of various legumes and of grass as shown by succeeding corn crops. (Jackson Substation) Tenn.
- Effect of sweet clover upon crop yields. (High Altitude Substation) Idaho.



FIELD CROPS --Residual Effect of Crops. (Cont.)

- Effect of sweet clover upon nitrogen accumulation and crop yields. (Sandpoint Substation) Idaho.
- Green manuring experiments with cowpeas, to determine the effect of cowpeas when turned under on non-legumes immediately following. (Jackson Substation) Tenn.
- Influence of mangels on following crops. R.I.
- Influence of onions on following crops. R.I.
- Effect of potatoes on following crops. R.I.
- Crop relations, comparative effect of tobacco and other crops on yields of succeeding crops. Md.
- Effect of various crops, both when turned under and when removed, on tobacco immediately following. (Clarksville Substation) Tenn.
- Effect of rye on following crops. R.I.
- Effects of rutabagas on other crops. R.I.
- The deleterious effect of sorghums on the soil and on the subsequent crops. Ariz.
- A study of sorghum residues as compared with other crop residues, with checks in both pot work and water cultures. (P) Ariz.
- Influence of squash on following crops. R.I.
- Effect of sunflowers upon yield of succeeding crops. (Huntley and Judith Basin Substations) Mont.
- Effect of fall v. spring seeding of timothy upon yield of wheat. Ohio.

Rice.

- Rice improvement and methods of production. Tex.
- Method of seeding rice.--To determine the effect of date of planting, rate of seeding, depth of covering seed, and manner of sowing. (Rice Substation, Crowley) La.
- Rice nutrition. Ark.
- Fertilizers:--Effect of on yield and quality of rice.--To determine the effect on yield of rice of nitrogen, phosphoric acid, potash, lime, and manure, singly and in combinations. (Rice Substation, Crowley) La.



FIELD CROPS--Rice. (Cont.)

Rotations:--Effect upon yield and quality of rice (a) 2-year with rice and soybeans, (b) 2-year with rice and pasture, (c) 4-year with rice, oats, corn, and soybeans, (Rice Substation, Crowley) La.

Introduction of rice varieties. Botanical and agronomical studies of rice collected from all parts of the world. (Rice Substation, Crowley) La.

Resistance of rice varieties to Helminthosporiose.--To study resistance of varieties of rice to Helminthosporum oryzae, with a view of getting a resistant variety. Porto Rico.

Rice investigations in Sacramento Valley. Calif.

Rice:--Distribution and study of varieties. Supplying the better varieties of rice developed to rice farmers for further increase and study. (Rice Substation, Crowley) La.

Root Crops.

Truck and root crops: Varietal trials with stock beets, turnips, rutabagas and carrots. (Union Substation) Oreg.

Root crop varieties in northern Montana. (North Montana Substation) Mont.

Comparison of various root crops, for forage and seed. (Sandpoint Substation) Idaho.

Root crops in the Judith Basin. (Judith Basin Substation) Mont.

Root crop rotations for northern Montana. (North Montana Substation) Mont.

To determine the relative yields of various root crops. (Dickinson Substation) N.Dak.

Root crop tests.--To ascertain how various root crops, particularly mangels, rutabagas, beets, and carrots, will be suited to Alaska conditions. (Matanuska Substation) Alaska.

Miscellaneous root crops. Mich.

FIELD CROPS--Rotations.

Rotation experiments. (Sandpoint Substation)	Idaho.
Rotation experiments. (South Mississippi Substation)	Miss.
Rotation experiments. (Bowling Green and Chatham Substations)	Va.
Rotation experiments. (Archer and Tottington Substations)	Wyo.
Crop rotations. (Northeast Substation, Duluth)	Minn.
Crop rotation experiments.	Ky.
Crop rotation investigations.	Minn.
Crop rotation experiment.	W.Va.
Studies of various crop rotations.	Del.
A comparative study of various crop rotations. (Jackson Substation)	Tenn.
Systems of crop rotations.	Ala.
A comparative study of different systems of cropping or crop rotation.	Ind.
Rotation, fertilizer, and soil improvement.	Tex.
Rotation experiments. Crop rotations. Soil fertility rotations. (Burns Substation)	Oreg.
Crop rotation and fertility.	Okla.
Crop rotation and fertilizer experiments.--To determine the influence of various rotations maintaining soil fertility.	Mo.
Rotation and fertility investigations.	Idaho.
The influence of rotations upon the maintenance of soil fertility. (A)	S.Dak.
Rotations and fertility tests.	Utah.
Fertility rotations. Eighteen rotations on Willamette silty clay loam, initiated 1909 and 1915.	Oreg.
Fertilizer rotation experiments.	Ala.
Combination fertilizer and rotation experiments.	Ark.



FIELD CROPS--Rotations. (Cont.)

- Crop rotation and fertilizer experiments.--To make comparative studies of various rotations and fertilizer applications in regard to their effect upon crop and soil. Nebr.
- Crop rotation and fertilizer studies.--To determine the relative merits of several different crop rotations and to compare different systems of fertilization, including commercial fertilizers, and farm manures. Ind.
- Studies in crop rotations.--To study the most profitable point in the rotation to apply the usual fertility measures practiced by Maryland farmers. Md.
- Commercial fertilizers applied to rotations. (Hermiston Substation) Oreg.
- The use of fertilizers in a rotation of corn, wheat, hay, and tomatoes. (Ridgely Substation) Md.
- Miscellaneous fertilizer experiments in connection with a three-year crop rotation. (Crossville Substation) Tenn.
- A study of the effects of different fertilizers, lime, and plaster, and different amounts and sources, on the production of corn, oats, and mixed clover, and timothy in rotation. Pa.
- Soil experiment fields: Including various rotations with various fertilizer treatments. (Lexington, Berea, Greenville, Russellville, Lone Oak, Mayfield, Fariston, Lincoln, Campbells-ville, and Hopkinsville Substations.) Ky.
- Crop rotation and soil fertility experiments. Tests of crop rotations, commercial fertilizers, and manure. Kans.
- The use of acid phosphate in amounts varying from 0 to 200 pounds per acre on a two-year rotation of wheat and clover. (West Central Substation, Morris) Minn.
- The use of acid phosphate, potash and nitrogen, separately and in combination, in a 2-yr. rotation of wheat or barley and potatoes, the fertilizers to be applied on the cultivated crop. (West Central Substation, Morris) Minn.
- The use of acid phosphate, of rock phosphate with manure and acid phosphate with manure, and the use of lime with all the above combinations, on a 4-yr. rotation of corn, wheat, oats, and clover. (West Central Substation, Morris) Minn.
- Comparison of various phosphates at various rates under both limed and unlimed conditions in a standard 3-year crop rotation. (Crossville Substation) Tenn.



FIELD CROPS--Rotations. (Cont.)

- Compost v. acid phosphate in a 3-year rotation. A comparison of yields from compost v. acid phosphate on corn, cotton and oats. (North Louisiana Substation, Calhoun) La.
- Cullers' rotation of crops, including tests of rock v. acid phosphate. Ala.
- Fertilizers and manures applied to different crops of a rotation. Ohio.
- A study of the best place in the rotation to apply manure. Ind.
- The use of barnyard manure applied at various rates on cultivated crop-wheat-red clover-oats. (Northwest Substation, Crookston) Minn.
- Barnyard manure at rates from 0 to 32 tons per acre upon 4-year rotation of corn, wheat, barley, clover. (West Central Substation, Morris) Minn.
- Fertilizing the dairy farm rotations. (a) Shall the manure be applied on the corn or hay? (b) Does it pay to reinforce manure with acid phosphate? (c) Does it pay to add fertilizer (as a starter) to manure on corn? Conn.Storrs.
- The use of straw applied at varying rates and the ash from two tons burned, on a rotation of cultivated-crop-wheat. (Northwest Substation, Crookston) Minn.
- Where fertilizers may be applied to best advantage in a given rotation, and whether in small quantities frequently or large quantities less frequently. Va.
- Effect of soil treatment on different rotations and on continuous corn. Ill.
- Fertilizer, lime, and green manure experiments in a rotation of cowpeas and wheat. Tenn.
- The effect of rock phosphate on crop growth under a 5-year rotation. Iowa.
- Rotations. A comparison of the value of green manures, barnyard manures, cultivated crops, and summer fallow. Wyo.
- Rotation experiment - to compare a number of rotations and determine the effect of clover and other legumes on the fertility of the soil. Ind.
- Use of crop residues applied at rates from 0 to 2 tons per acre upon rotation of corn and wheat. (West Central Substation Morris) Minn.

FIELD CROPS--Rotations. (Cont.)

- Types of rotations with and without tobacco. (Appomattox Substation) Va.
- Fertilizer experiments with sun cured tobacco and other crops grown in rotation with it. (Bowling Green Substation) Va.
- Fertilizer experiments with dark tobacco and crops grown in rotations with it. (Appomattox and Charlotte Court House Substations) Va.
- Fertilizer experiments with bright tobacco and crops grown in rotation with it. (Chatham Substation) Va.
- Study of crop rotations v. continuous cropping. Del.
- Rotation v. continuous culture test.--To determine the difference as observed in yield between crop rotation and continuous culture with special reference to corn, cowpeas, and velvet beans, and to study the effect of each of these crops on the physical condition of the soil. Guam.
- Alternate and continuous cropping. Minn.
- Rotation of crops to compare yields with continuous cropping yields of the same crops. (Hermiston Substation) Oreg.
- Crop rotation experiments. Continuous cropping of corn. (Northwest Substation, Crookston) Minn.
- Fertility investigations with continuous cropping (corn) on Wisconsin drift soil. Iowa.
- Continuous cropping without clover or manure. (Northeast Demonstration Farm, Duluth) Minn.
- Maintenance of soil fertility.--Continuous wheat cropping in unmanured, unfertilized plats cropped to wheat since 1882. N. Dak.
- Continuous cropping of wheat with clover mixture. (Northwest Substation, Crookston) Minn.
- Continuous cropping of wheat, oats, barley, and a four-year rotation of cultivated crop-wheat-oats-barley. (Northwest Substation, Crookston) Minn.
- Alternate cropping of plats with wheat and oats, wheat and barley, barley and oats, in comparison with continuous cropping with each (Northwest Substation, Crookston) Minn.
- Rotation of crops, including continuous cropping of corn, cotton, and oats, with two, three, and four year rotations with legumes planted in and between regular crops; also silage corn and crimson clover. (Starkville, Holly Springs, and Raymond Substations) Miss.



FIELD CROPS--Rotations. (Cont.)

- Demonstration rotations on large area plats with (a) corn and cowpeas, (b) cotton in regular rotation. (North Louisiana Station, Calhoun) La.
- Cereals: Crop rotation trials covering one-, two- and three-year rotation systems. (Union Substation) Oreg.
- Corn, potatoes, rye, and rowen, one to three years of grass, including one rotation with and one without legumes. H.I.
- Three two year rotation in which two tons per acre of manure are applied: oats and wheat, oats and barley, and wheat and barley. (West Central Substation, Morris) Minn.
- Fertility investigations with a two-year crop rotation system on Wisconsin drift soil. Iowa.
- Fertility experiments in a cowpea-corn rotation. Tenn.
- Fertility investigations with a three-year crop rotation system on Wisconsin drift soil. Iowa.
- Three year rotation of oats, clover, and corn applying six tons of manure preceding corn. (West Central Substation, Morris) Minn.
- A three-year rotation of cultivated crop, wheat and a clover mixture. (Northwest Substation, Crookston) Minn.
- Source of phosphate experiments with cotton, corn, and oats in rotation. Ala.
- To compare the value of cowpeas, biloxi, soy beans, and velvet beans in the usual 3-year rotation, with and without Melilotus indica on the plant cane. (Sugar Substation) La.
- To study quantitatively the crop effects upon each other when grown in 3-year rotations in which "row" crops, "broadcast" crops and various legumes are combined in different ways. N.C.
- Crop rotation studies with velvet beans, corn and sweet potatoes. Fla.
- Fertility investigations with a four-year crop rotation system on Wisconsin drift soil. Iowa.
- Fertility study.--To compare the effect of summer fallow in a four-year rotation where different crop sequence occurs. (Northwest Substation, Crookston) Minn.



FIELD CROPS--Rotations. (Cont.)

- Maintenance of soil fertility.--The influence of soil treatment upon the yield of spring wheat after potatoes in a 4-year rotation--potatoes, wheat, clover, barley--on the Fargo clay. N.Dak.
- Utilization of medium red clover in a 4-year rotation of corn, wheat, barley, and clover. (West Central Substation, Morris) Minn.
- A comparison of various soil treatments in a rotation of corn, barley, wheat, and either red clover or alfalfa. (Joliet Substation) Ill.
- Sweet clover as a crop for soil improvement in a 3 year and a 4 year rotation. (Odin Substation) Ill.
- Rotation experiment.--To determine the effect of clover on the fertility of the soil as compared with timothy in rotation with corn and wheat; and to compare these with a 4-year rotation. Ind.
- Four year rotation with peas and oats, timothy and clover. (Astoria Substation) Oreg.
- Four year rotation of kafir, wheat, and cowpeas. Okla.
- Soil improvement experiment.--Phosphorus, lime, and legumes turned under to maintain soil fertility for cotton in a four-year rotation. N.C.
- Soil treatment for truck crops in a four-year rotation in northern Illinois. Ill.
- Fertilizer and liming experiments in a five-year crop rotation. (Murfreesboro Substation) Tenn.
- Improving a poor soil in a 5-year rotation of general farm crops in comparison with improving it by means of sweet clover as a self-seeding crop. N.J.
- Fertility investigations with a five-year crop rotation system on Wisconsin drift soil. Iowa.
- Sand experiment field. Bulk cropping - a rotation of corn, soy beans, wheat, and two years of alfalfa. Ind.
- A five-year rotation of wheat, sweet clover, cultivated crop, oats, and alfalfa. (Northwest Substation, Crookston) Minn.

FIELD CROPS--Rotations. (Cont.)

- Five year rotation of oats, clover hay, timothy and clover hay, corn, and wheat, applying ten tons manure, preceding corn. (West Central Substation, Morris) Minn.
- A five-year rotation of wheat, sweet clover, cultivated crop, flax, oats. (Northwest Substation, Crookston) Minn.
- Manure and fertilizer experiments in a 5-year crop rotation. Tenn.
- A comparison of magnesian and nonmagnesian limestone in four different 5-year rotations. N.J.
- A seven-year rotation of barley, wheat, oats, sweet clover, cultivated crop, flax, alfalfa. (Northwest Substation, Crookston) Minn.
- A seven-year rotation of barley, durum, oats, sweet clover, cultivated crop, flax, common wheat. (Northwest Substation, Crookston) Minn.
- Rotations: Potatoes, corn, five years of mainly alfalfa. R.I.
- Rotations: Corn, early potatoes, four years of mainly alfalfa. R.I.
- Eight year rotation without manure, four years cereal crop and four years alfalfa. (West Central Substation, Morris) Minn.
- Crop rotations -- Permanent Rotation Experiments -- at the Central, Piedmont, Upper Coastal Plain and Mountain Stations. N.C.
- Silage corn with grass and clover seed in it, grass, oat, and pea hay followed by rutabagas; annually 4 cords cow manure with straw bedding v. sawdust bedding, the latter with different amounts of phosphorus and of potassium, all compared with fertilizer alone. R.I.
- Potatoes, rye as green manure for squashes, onions, wheat and rowen, grass. R.I.
- Crop rotation experiments in cane farming.--To determine the relative effects of continued cane cropping on the same soil and a rotation system on the yield of cane and sugar production on St. Croix soils. Virgin Islands.
- Fertilizer experiments with truck crops in a three-year rotation on brown silt loam in soil of the Corn Belt. Ill.
- Potato investigations. Rotation tests. (Northwest Substation, Crookston) Minn.



FIELD CROPS--Rotations. (Cont.)

- Alfalfa in rotation, following early potatoes for four years preceding corn. R.I.
- Forage crops investigations. Succession of crops or rotation trials with vetches and other forage crops. Oreg.
- Rotations - Effect upon yield and quality of rice(a) 2-year with rice and soy beans, (b) 2-year with rice and pasture, (c) 4-year with rice, oats, corn, and soy beans. (Rice Substation, Crowley) La.
- Rotations - To develop the best system of rotations adapted to the strawberry section, with the idea of increasing humus and soil fertility in the most economical manner. (Fruit and Truck Substation, Hammond) La.
- Beets, peas, spinach, and potatoes followed by late cabbages in the same season. R.I.
- Dry land rotation and tillage experiments.--To determine the proper rotation and crop sequence, and the most desirable tillage methods for farming in western North Dakota. (Dickinson and Hettinger Substations) N.Dak.
- Fertility rotation. Twenty-nine cooperative dry land rotations. (Moro and Burns Substations) Oreg.
- Crop rotation experiments.--To determine (a) what crops if any can be partly or entirely substituted for bare fallow in dry-land grain production, (b) the best order or sequence to grow cultivated crops in a rotation with grain on dry land, and (c) the effects on yields of grain of turning under various grain and leguminous crops for green manure as compared with bone fallow without manurial or fertilizer applications. (Moro Substation) Oreg.
- Irrigation rotations. Mont.
- Irrigation rotation experiments. (Scottsbluff Substation) Nebr.
- Fertility rotations. Cooperative irrigation rotations, (Hermiston, Burns, and Medford Substations) Oreg.
- Study of various crop rotations and the effect of the preceding crop upon yield. 50 tests in all. Ohio.



FIELD CROPS--Rotations. (Cont.)

- Rotation experiments.--To determine the effect (a) of various rotations upon the yield of crops, and economic returns per unit area, (b) of the various cropping systems upon the moisture and humus of the soil. (Davis Substation) Calif.
- Rotation experiment.--To compare four different crop rotations adapted for use on the acid peaty sand soil of the Kankakee Valley. Ind.
- A study of varietal adaptations and fertilizer requirements on Red River Valley soils. The effects of varied crop sequence. (Northwest Substation, Crookston) Minn.
- Rotation experiment for high altitude farms. (Lyman Substation) Wyo.
- Special rotations. Ark.
- Fallow in the Judith Basin crop rotation. (Judith Basin Substation) Mont.
- Fallow in northern Montana crop rotations. (North Montana Substation) Mont.
- Fallow on dry land in the Yellowstone Valley. (Huntley Substation) Mont.
- Rye in rotations. R.I.
- Mixed oats and Canada field peas in a rotation with manure v. fertilizer. R.I.
- Rutabagas in a rotation with manure v. fertilizers. R.I.
- Crop rotations and comparison of livestock and grain systems of farming. S.Dak.
- Silage corn in a rotation with manure v. fertilizer. R.I.

Rutabagas.

- Variety tests of stock rutabagas. (Northwest Substation, Crookston) Minn.
- Rutabagas in a rotation with manure v. fertilizers. R.I.
- Effects of rutabagas on other crops. R.I.

FIELD CROPS--Rye.

- Rye breeding. Mich.
- Rye breeding. Wis.
- Breeding rye. N.Y. Cornell
- Breeding work with rye. S.C.
- Rye, oat, and barley breeding. Wis.
- Practical rye breeding.--To produce a hardy, high-yielding variety of rye with large and uniformly colored grains. N.Dak.
- Rye head selection. Mich.
- Cereals: Breeding and selection of pure strains of wheat, barley, oats, and rye. (Union Substation) Oreg.
- The isolation of pure forms of rye by continuous selection to produce self-fertilized lines and to obtain improved varieties for Minnesota. Minn.
- Cereal investigations. Nursery trials with wheat and rye selections and wheat-rye hybrids. Oreg.
- The culture and improvement of small grains, including wheat, oats, barley, rye, etc. Ariz.
- Variety test of rye. (North Central Substation, Grand Rapids) Minn.
- Variety tests of rye. (Appomattox, Bowling Green, Chatham, Lightfoot, Martinsville, Staunton, and Charlotte Court House Substations) Va.
- Rate of seeding winter rye and winter wheat. (North Central Substation, Grand Rapids) Minn.
- Rye variety tests.--To test varieties of winter rye in order to find those which are entirely hardy in interior Alaska. (Fairbanks, Matanuska, and Rampart Substations) Alaska.
- Small grain variety tests.--Testing of standard varieties of wheat, oats, rye, and barley. (Statesville Substation) N.C.
- Cereals: Varietal trials with wheat, barley, oats, peas, flax, and rye. (Union Substation) Oreg.

FIELD CROPS--Rye. (Cont.)

Cereal variety tests.--To test new and standard varieties of spring wheat, oats, barley, and winter rye, as to yielding capacity, resistance to disease and trade value as measured by milling and baking tests. N.Dak.

Experiments with rye.--To determine what varieties are best adapted to this region, especially in winter hardiness. (Dickinson Substation) N.Dak.

Rye varieties in the Gallatin Valley. Mont.

Rye production: Varieties, breeding, and cultural methods. Ark.

Rye: Variety tests and cultural experiments. Va.

Variety testing, breeding, acclimatization, and cultural studies of small grains.--To improve the quality and yield of small grains, including winter wheat, oats, spring wheat, rye, winter barley, and winter emmer. Nebr.

Rate and date of seeding oats, wheat, barley, and rye. Minn.

Effect of rye as a winter crop for early spring plowing and same for later work in vegetable production. Md.

Winter rye in the Judith Basin crop rotation. (Judith Basin Substation) Mont.

Winter rye in northern Montana crop rotations. (North Montana Substation) Mont.

Spring rye varieties in northern Montana. (North Montana Substation) Mont.

Studies of varietal resistance of wheat, barley, rye, and oats to root and culm rots. Minn.

Rye in rotations. R.I.

Rye as a green manure for tomatoes, lettuce, beets, and celery. R.I.

Effect of rye on following crops. R.I.

The continuous growing of wheat and rye with and without a legume cover crop. N.J.



FIELD CROPS--Serradella.

Variety test of field peas, soy beans, vetch, and serradella.  
(North Central Substation, Grand Rapids)

Minn.

Silage Crops. (See also FEEDING STUFFS AND ANIMAL NUTRITION--SILAGE -p.308)

Variety tests of silage crops. (Hermiston Substation)

Oreg.

Ensilage variety tests.

N.H.

Comparative tests of individual species and combinations for  
silage hay and roots. (Astoria Substation)

Oreg.

Comparison of various kinds of silage and roots for northern  
Wisconsin.

Wis.

Variety tests of corn for the production of silage.  
(Aberdeen Substation)

Idaho.

A study of types of corn for silage. The loss of nutrients in  
the process of silage making. The comparative feeding value  
of corn silage from types of corn ranging from a type not  
maturing ears to a type producing practically mature grain  
in the latitude of southern New York.

N.Y.Cornell.

Cultural tests of corn for silage production.

Idaho.

A study of silage corn and supplementary silage crops, especially  
sunflowers and soy beans, including such factors as the stage  
at which corn is most valuable for silage purposes per pound  
of dry matter; the variety which will produce the greatest  
amount of dry matter per acre; the effect of an irregular stand  
on the yield of corn; the productivity and adaptation of sun-  
flowers for silage purposes; the varieties of soy beans best  
suited for silage purposes; the effect of planting date on the  
development and yield of corn.

N.Y.Cornell

Comparison of yields of corn, peas, barley, and sunflowers  
for silage purposes. (Union Substation)

Oreg.

Corn and soy beans for silage.

Ohio.

Improvement of sunflowers for silage production by selection and  
breeding.

Idaho.

Rate of seeding sunflowers as related to yield of silage.  
(Aberdeen substation)

Idaho.

Crops for silage. Including corn, different varieties of sorghum,  
and sunflowers.

Miss.

FIELD CROPS--Silage Crops. (Cont.)

A comparison of the value of sweet clover and sunflower silage with corn silage. N.Dak.

To determine the best stage of maturity at which to harvest sweet clover and sunflowers for silage and the optimum moisture content for making silage of these crops. N.Dak.

To determine the practicability of utilizing sweet clover as a silage crop, the best method of preparing such silage, and its value as a feed for farm animals. N.Dak.

Combination crops for silage: Sunflowers and peas; oats and peas; barley and peas; wheat and peas. (Burns Substation) Oreg.

Weight of sunflower silage. Mont.

Rape as material for silage. Iowa.

Sorghums. (See also Broom Corn, p.65, Kafir, p. 106, and Sudan Grass p.147.)

Inheritance in grain sorghums. (A) Tex.

Breeding experiments with wheat, oats, corn, and sorghums. Kans.

Improvement of saccharine sorghum by selection. Wis.

Crop improvement by mass and individual plant selection, including small grains, corn, grain sorghums, and peanuts. Tex.

Sorghum variety tests. Miss.

Variety tests with sorghum. S.C.

Variety tests of grain sorghums.--To determine the yields of different varieties of grain sorghums, as shown by competitive tests. Okla.

Varietal experiments with grain sorghum.--To determine whether grain sorghum will mature in the average season, and if so, to compare its yield with corn and other grain crops. (Dickinson Substation) N.Dak.

Variety tests of sweet sorghums.--To determine the yields of different varieties of sweet sorghums as shown by competitive tests. Okla.

Studies of varieties, culture, and improvement of forage crops, such as sorghums and grasses. Ariz.

A study of the cultural requirements and adaptation of grain sorghums. Mo.



FIELD CROPS--Sorghums. (Cont.)

- Annual forage crops: Millets, Sudan grass, and other sorghums. Ohio.
- Annual forage crops - millet, sorghum, and sudan grass.--To test the relative forage yields of the annual grasses, millet, sorghum, and Sudan grass. (Dickinson Substation) N.Dak.
- The production of sirup, grain, and forage from sorghum in Arkansas. Ark.
- Millets, sorghums, and Sudan grass in the Judith Basin. (Judith Basin Substation) Mont.
- Millet, sorgos, and Sudan grass in northern Montana. (North Montana Substation) Mont.
- A comparison of the most important grain sorghums with corn for grain and forage production. Mo.
- Experiments with non-saccharine sorghums and broom corn. Calif.
- Peanuts, sorghums, legumes.--To keep in timely touch with subjects that are constantly coming up, not of sufficient importance for separate projects. Okla.

Soy Beans.

- Genetic studies in soy beans. Ill.
- Improvement of soy beans by selection. Ind.
- Soy bean breeding and cultural studies. Wis.
- Soy bean breeding for varieties especially suited to Iowa conditions. Iowa.
- Soy bean breeding.--Pure lines isolated from Haberlandt, Virginia, and Mammoth Yellow to determine their place among the established varieties. N.C.
- Breeding soy beans for northern Wisconsin sandy soils, (b) soy bean culture experiments in northern Wisconsin, (c) variety tests with soy beans on sandy soils. Wis.
- Effect of selection on the oil and protein content of the soy bean. Ill.
- Soy bean selection for increased oil.--The selection and study of pure lines of Mammoth Yellow for yield and oil content. N.C.



FIELD CROPS--Soy Beans. (Cont.)

- Selection and varietal trials with soy beans. Oreg.
- Soy beans: Variety, cultural, and breeding work. Ohio.
- A morphological classification of the varieties of soy beans. Mo.
- Soy bean variety studies. (Raymond Substation) Miss.
- Soy beans - variety tests. Ala.
- Variety trials of soy beans for hay and seed. Minn.
- Variety tests with soy beans. (Appomattox, Bowling Green, Chatham, Holland, Lightfoot, Martinsville, Staunton, and Charlotte Court House Substations) Va.
- Soy bean variety test.--To determine the leading varieties. La.
- Variety test of field peas, soy beans, and vetch and serradella. (North Central Substation, Grand Rapids) Minn.
- Crop variety tests; Corn, wheat, oats, soy beans. Del.
- Variety trials of various farm crops, including corn, cotton, soy beans, grasses, clovers, and lespedezas. (Jackson, Columbia, and Crossville Substations) Tenn.
- Varietal trials of corn, wheat, oats, lespedeza, and soy beans. Tenn.
- Variety tests.--To compare the most promising varieties of small grains, corn, and soy beans. Ind.
- Variety trials of cotton, soy beans, and lespedeza. (Murfreesboro Substation) Tenn.
- Variety tests of corn, wheat, and soy beans. (Ridgely Substation) Md.
- Soy bean varieties in the Gallatin Valley. Mont.
- Soy bean varieties in the Judith Basin. (Judith Basin Substation) Mont.
- Variety tests of soy beans. (Hermiston Substation) Oreg.
- Forage crops: Varietal trials with soy beans for silage purposes. (Union Substation) Oreg.
- Soy beans--varietal tests and cultural studies. Mich.

FIELD CROPS--Soy Beans. (Cont.)

- Soy bean variety tests and cultural methods.--To determine varieties and cultural methods adaptable to North Dakota. N.Dak.
- Soy bean investigation: Adaptation of imported varieties, selection of superior types, and tests of yields for hay and seed of varieties. Md.
- A study of the adaptation of the important varieties and selections of soy beans to the various soil types of the State. Mo.
- Varieties of soy beans and soy beans v. oats in rotation. Pa.
- Determination of the relative value of different varieties of soy beans for both hay and seed, and the adaptation of the several varieties to the different sections of the State. Ill.
- Soy bean variety test.--To determine the best varieties of soy beans for hay and seed production. (Swannanoa--Raleigh Substations) N.C.
- Soy beans: Varieties, culture, and yields of hay and grain. Va.
- Soy bean investigations, including variety tests, methods of seeding, and planting alone and with other crops. W.Va.
- Cultural experiments with soy beans, including (a) time of seeding, (b) method of seeding, and (c) rate of seeding. Mo.
- Studies in crop cultural methods--Soy beans.--To determine the best methods, rate and distance of planting soy beans for both seed and forage production. Ind.
- Rates, dates, and methods of planting soy beans and soy bean mixtures. (Northwest Substation, Crookston, and North Central Substation, Grand Rapids.) Minn.
- Date and rate of seeding and methods of cultivation of soy beans. Minn.
- Rate of seeding soy beans for seed and hay. N.C.
- Date-of-planting experiments with both corn and soy beans. Tenn.
- A comparison of distance apart to plant corn, corn and soy beans, and sunflowers. Minn.
- Effect of various combinations of fertilizers on quality of wheat, corn, and soy beans. Del.
- Influence of liming and inoculation on growth and composition of several varieties of soy beans. Ill.



FIELD CROPS--Soy Beans. (Cont.)

- Inoculation experiments with soy beans. (Columbia Substation) Tenn.
- Effect of inoculation of soy bean seed on nitrogen content of plants. Wis.
- Soy beans: Effect of time of harvesting upon yield and quality of hay and upon yield of wheat following. Comparison of varieties for hay at varied rates of planting. Ohio.
- Investigation of the soy bean in its relation to crop succession. Ill.
- Should soy beans be put into the silo or cured and fed as hay? Ohio.
- Comparison of soy beans and cowpeas for hay and seed production. Mo.
- Comparison of alfalfa, sweet clover, cowpeas, and soy beans as hay crops. (Charlotte Court House Substation) Va.
- Place soy beans could occupy in the farm rotation. Md.
- Investigation of associated growth of soy beans and corn. Wis.
- Soy bean studies. Composition and yields at different stages of growth. Iowa.
- Soy bean harvesting and threshing studies. Ill.
- Soy bean production. Iowa.
- Study of soy beans. Ark.
- Soy bean studies. Miss.

Sudan Grass.

- The inheritance in root crosses between Sudan grass and Johnson grass.--To determine the mode of inheritance of the root systems in crosses between Johnson grass and Sudan grass. (A) Ga.
- Date, rate, and method of seeding Sudan grass. Ind.
- Rate of seeding Sudan grass and cowpea mixture for hay. Ala.
- Value of Sudan grass as forage crop for Wisconsin. Wis.
- Sudan grass studies. Iowa.
- Annual forage crops. Millets, Sudan grass, and other sorghums. Ohio.



FIELD CROPS--Sudan Grass. (Cont.)

Annual forage crops - millet, sorghum, and Sudan grass.--To test the relative forage yields of the annual grasses, millet, sorghum, and Sudan grass. (Dickinson Substation)	N.Dak.
Millet, sorghums, and Sudan grass in the Judith Basin. (Judith Basin Substation)	Mont.
Millet, sorgos, and Sudan grass in northern Montana. (North Montana Substation)	Mont.
Sudan grass as a forage crop.	R.I.

Sugar Beets.

Sugar beet breeding.	Mich.
Selection work with sugar beets to improve the sugar content. (Aroostook Substation)	Me.
Seed production. Sugar beets: Selection and improvement of sugar beets for high sugar content by propagation of mother beets showing highest percentage of sugar. (Aberdeen Substation)	Idaho.
Variety tests of sugar beets. (Northwest Substation, Crookston)	Minn.
Variety tests of sugar beets. (Baton Rouge Substation)	La.
Sugar beets: Varietal testing.	Mich.
Fertilizer tests with sugar beets under irrigation. (Huntley Substation)	Mont.
Sugar beet studies.--(a) To determine best date of spring planting and best date of fall planting. (b) To compare the furrow v. flooding method of irrigation, and (c) to compare effect on germination of irrigating before and after planting.	N.Mex.
Sugar beets--cultural methods. Effect of date of planting on yield per acre.	Mich.
Sugar beets--cultural methods. Field storage.	Mich.
The value and productivity of sugar beet seed produced annually instead of biennially. (A)	N.Mex.
Treatment of sugar beet seed.	Mich.
Sugar beet strains in the Gallatin Valley.	Mont.
Sugar beets in irrigated rotations in the Yellowstone Valley. (Huntley Substation)	Mont.

FIELD CROPS--Sugar Cane.

Sugar cane breeding experiments.--To develop sugar cane varieties that are adapted to the dry weather conditions of St. Croix and that will ratoon well and yield a heavier tonnage of sugar than do the locally grown varieties Crystalline and Ribbon. Virgin Islands.

Selective cane breeding.--To develop improved strains of the standard varieties of sugar cane with reference to high yield of cane, high sucrose content, and resistance to drought, disease, and insects. Virgin Islands.

Cane breeding from seed. The production of improved varieties of sugar cane, particularly with respect to disease resistance. Porto Rico.

Variety test of sugar cane.--To determine the variety or varieties of sugar cane that will produce the highest yield of sugar under St. Croix conditions. Virgin Islands.

Test of sugar cane seedling S.C. 12/4.--To determine the relative values of S. C. 12/4 cane and Crystalline cane for planting in St. Croix. Virgin Islands.

Testing of new seedling canes. (P) La.

Relation of sugar cane varieties to soil conditions. (P) La.

Determination of the effect of various soil amendments and fertilizers on growth of sugar cane in the Everglades. Fla.

To determine the effect of potash as a necessary ingredient in a cane fertilizer and also the time of application. (Sugar Substation) La.

To determine the comparative value of commercial nitrogenous materials when used in fertilizing sugar cane. (Sugar Substation) La.

To determine the proper ratio of phosphoric acid in a cane fertilizer. (Sugar Substation) La.

Commercial nitrogen v. leguminous plants in cane growing.--To determine the comparative utility of nitrate of soda, sulphate of ammonia and leguminous manures as sources of nitrogen for cane fertilization. Porto Rico.

Paper mulch experiment with sugar cane.--To determine the influence of a paper mulch applied on cane land before planting the crop on the total yield of sugar produced. Virgin Islands.

Sugar cane spacing test.--To determine the relative effects of close and distant planting of cane on the yield of harvested cane and the production of sugar. Virgin Islands.



FIELD CROPS--Sugar Cane. (Cont.)

A study of the relation between sucrose content in cane and its value for cuttings.--To determine the stage of development in cane as indicated by sucrose content in which it gives best results as plant tops and cane cuttings.

Virgin Islands.

To determine the value of cane trash when turned under as compared with cane trash burned. (Sugar Substation)

La.

Sunflowers.

Sunflower breeding.

Mont.

Sunflower breeding.

(P)

Mont.

Breeding field corn and sunflowers.

N.Y. Cornell.

Farm crop production investigations. Sunflower improvement.  
(Northeast Substation, Duluth)

Minn.

Improvement of sunflowers for silage production by selection and breeding.

Idaho.

Sunflower varieties in the Gallatin Valley.

Mont.

Sunflower investigations, including a trial of types, selection for improvement, and rate of seeding.

W. Va.

Cultural experiments with sunflowers.

Idaho.

Method of planting sunflowers on irrigated land.

Mont.

Silage crop investigations. Rate and date of planting sunflowers.  
(Sandpoint Substation)

Idaho.

Date of seeding sunflowers for silage.

Mont.

Sunflowers and corn. Rate and method of seeding. (Judith Basin Substation)

Mont.

A comparison of distance apart to plant corn, corn and soy beans, and sunflowers.

Minn.

Rate of seeding sunflowers as related to yield of silage.  
(Aberdeen Substation)

Idaho.

Corn v. sunflowers in northern Montana. (North Montana Substation)

Mont.

Effect of sunflowers upon yield of succeeding crops.

(Huntley and Judith Basin Substations)

Mont.

Sunflowers as a forage crop.

R.I.

Sweet Clover.

(See Clover, Sweet p.72)



FIELD CROPS--Sweet Potatoes.

- Sweet potato breeding work.--To develop a sweet potato variety of good quality and greater prolificacy than the varieties commonly grown in the Virgin Islands. Virgin Islands.
- Breeding experiments with the sweet potato.--To determine the influence of the heavy yielding character of the individual plant upon the yielding character of its progeny. Virgin Islands.
- Sweet potato seed selection.--To determine the relative value of seed stock from high yielding and low yielding hills (disease free stock only to be used) as regards: (a) Productivity, (b) uniformity of potatoes as to size, type, etc. To determine the relative value of vine cuttings as compared with slips for maintaining yield and type, commencing from same hill. To determine the comparative value of large and small potatoes for seed. N.C.
- Strain selection of sweet potatoes. N.C.
- Sweet potato seed improvement work.--To determine if strains of special merit exist among the leading market varieties. La.
- Sweet potatoes. Variety studies. Miss.
- Varieties of sweet potatoes best suited to the State. Okla.
- Sweet potato variety test.--To determine which imported and local varieties are best adapted to local conditions. Guam.
- Varietal trials of various market garden crops, such as Irish potatoes, sweet potatoes, kale, and strawberries. Tenn.
- To learn best varieties and cultural methods for yautias, dasheens, and sweet potatoes for Porto Rico. Porto Rico.
- Sweet potatoes. Variety, fertilizer, culture, harvesting, and curing tests. (Holly Springs Substation) Miss.
- Sweet potato cultural practices.--To determine the comparative value of slips v. vine cuttings as regards productivity; the effect of ridging on productivity and type of potatoes; the effect of vine cuttings on yield. (Willard and Coastal Plain Substations) N.C.
- Fertilization of sweet potatoes. Ga.
- A study of fertilizers for sweet potatoes. Best nitrogen and potash carriers. Md.
- Plant food studies with sweet potatoes. N.J.

FIELD CROPS--Sweet Potatoes. (Cont.)

- Sweet potato fertilizer experiment.--To determine the potash requirement of the sweet potato and the best source of nitrogen. N.C.
- Sweet potato fertilizer test.--To determine what fertilizer or combination of fertilizers is best suited for growing sweet potatoes under Guam conditions. Guam.
- Sweet potato fertilizer test.--To determine the influence of stable manure on the yield of sweet potatoes. Virgin Islands
- The relation of sulphur, sulphur-phosphate mixtures, fertilizers, manure, lime, and varieties to yield and disease control of sweet potatoes. N.J.
- Lime influence on sweet potatoes. (Salisbury and Cheltenham Substations) Md.
- Rotation and fertilizer experiments with corn, sweet potatoes, peanuts, and Napier grass, to determine the production of corn, sweet potatoes and peanuts in rotation, using various forms of commercial fertilizers and lime, and also the best method of fertilizing Napier grass. Fla.
- Sweet potatoes.--(a) Effect of vine pruning upon size and yield of tubers, (b) effect of spacing plants upon size and yield of tubers, (c) variety adaptation, (d) irrigation, (e) tuber selection. Ariz.
- Crop rotation studies with velvet beans, corn, and sweet potatoes. Fla.
- Sweet potato. Comparison of seed from late vine cuttings with seed from main crop draws, as regards productivity, type, and keeping quality. (Willard and Coastal Plain Substations) N.C.
- Sweet potato plants (draws) v. vines (cuttings).--To determine whether potatoes grown from vines (cuttings) give higher yields of marketable potatoes than those grown from plants. La.
- Observations on the variations of sweet potato seedlings.--To obtain data on the variations of sweet potato seedlings where two or more seedlings are grown from a single pericarp under natural conditions of pollination. Virgin Islands
- Germination tests of sweet potato seed.--To determine the effect of scarification upon the length of time between planting and germination of sweet potato seed and the percentage of germination. Virgin Islands
- Effect of variation in local day length on beans and sweet potatoes.--To learn the importance of variation in day length and consequently of planting season on economic crops in the tropics. Porto Rico.



FIELD CROPS--Sweet Potatoes. (Cont.)

A study of the factors involved in the production, curing and shipping of sweet potatoes. Ark.

Sweet potato storage.--To determine the best keeping varieties of sweet potatoes and the amount of shrinkage in varieties in storage. To collect notes and information on storing, curing, and operating a storage house. To study the relation of temperature, time of harvest, maturity, and frost to the keeping quality of sweet potatoes. (Willard and Coastal Plains Substation) N.C.

Nature of the physiological changes in stored sweet potatoes. (A) Ala.

Sweet potato storage and freezing test. Miss.

Experiments with sweet potatoes, eggplants, peppers, and cantaloupes. (Ridgely Substation) Md.

Sweet potato studies. (South Mississippi Substation) Miss.

Sweet and Irish potato studies. (Raymond Substation) Miss.

Timothy.

Breeding timothy. N.Y. Cornell.

Selections in self-fertilized lines of timothy. Minn.

Timothy improvement. Pa.

The production of high-yielding, rust-resistant timothy. Minn.

Test of timothy strains produced by U.S.D.A. timothy breeding station at Elyria, Ohio. Ohio.

Timothy variety test. (Sandpoint Substation) Idaho.

Effect of fall v. spring seeding of timothy upon yield of wheat. Ohio.



FIELD CROPS--Tobacco.

- Selection and cross breeding of tobacco. Development of improved types of Connecticut Havana tobacco. Wis.
- Maryland export tobacco investigations.--To improve by breeding and selection, to determine the best fertilizers, best systems of crop rotation, methods of growing, curing and handling, and control of important diseases. Md.
- Methods for the improvement of naturally self-fertilized plants, with particular attention to tobacco. (A) Conn.State.
- Sterility of hybrids of Nicotiana. Pa.
- Improvement of Cuban shade-grown tobacco. (Windsor Tobacco Substation) Conn.State.
- Breeding tobacco for resistance to root rot and high yield. (P) W.Va.
- Development of black-root-resistant strains of Burley tobacco. (P) Ky.
- Production of root-rot-resistant types of tobacco. Wis.
- Inheritance of disease-resistance in tobacco to the root rot disease caused by Thielavia. Wis.
- Strain trials of Havana seed leaf and broadleaf tobacco. (Windsor Tobacco Substation) Conn.State.
- Variety tests with tobacco. (Appomattox, Bowling Green, Chatham, and Charlotte Court House Substations) Va.
- Varietal trials of tobacco. (Clarksville Substation) Tenn.
- Tobacco variety tests. Ky.
- To study the different varieties of tobacco with respect to yield and commercial quality. (Oxford and Reidsville Substations) N.C.
- Spacing experiments with tobacco. (Clarksville Substation) Tenn.
- Spacing in connection with variety trials of Burley tobacco. Tenn.
- Fertilizer tests with tobacco. Ky.
- Studies of fertilizer requirements of tobacco. Wis.

FIELD CROPS--Tobacco.. (Cont.)

- Fertilizer experiments with tobacco, including comparison of different sources of potash and of dolomite and calcite, special potash experiment, magnesia experiment, tests with magnesia, sulphur, and chlorine, and comparison of sources of nitrogen. N.C.
- Fertilizer experiments with dark tobacco and crops grown in rotations with it. (Appomattox and Charlotte Court House Substations) Va.
- Fertilizer tests with bright tobacco and crops grown in rotation with it. (Chatham Substation) Va.
- Fertilizer experiments with sun cured tobacco and other crops grown in rotation with it. (Bowling Green Substation) Va.
- Fertilizer experiments with shade-grown tobacco. (Tobacco Substation) Fla.
- Fertilizer tests with tobacco. Sources of nitrogen, rates, and sources of phosphoric acid, sources of potash, and fractional applications compared with broadcast at different rates. (Windsor Tobacco Substation) Conn.State.
- Experiments with various sources of nitrogen, with special regard to yield of dark tobacco. (Clarksville Substation) Tenn.
- Sources of ammonia used in tobacco fertilizers. (Chatham Substation) Va.
- The nitrogen intake of Havana tobacco. (P) Mass.
- Determination of the effect of various carriers of phosphoric acid on the growth and quality of shade tobacco. Fla.
- Determination of the effect of various carriers of potash on growth and quality of shade tobacco. Fla.
- Fertilizer and liming experiments with tobacco, including the effect and value of magnesium salts. (Clarksville Substation) Tenn.
- Determination of the need for manure in growing shade tobacco. Fla.
- Effect of various crops, both when turned under and when removed, on tobacco immediately following. (Clarksville Substation) Tenn.
- Effect of various cover crops on yield, quality, and disease of tobacco. (Windsor Tobacco Substation) Conn.State.

FIELD CROPS--Tobacco. (Cont.)

The study of the effect of crops plus their specific fertilizers upon those which follow, with special reference to tobacco. Mass.

Rotation experiments with tobacco. Ky.

Types of rotations with and without tobacco. (Appomattox Substation) Va.

Study of the effects of other crops in a rotation on tobacco. Wis.

Crop relations, comparative effect of tobacco and other crops on yields of succeeding crops. Md.

Tobacco curing experiments. Ky.

Studies on tobacco curing. Wis.

Study of relationship of soil moisture content to yield and quality of tobacco. Mass.

Tobacco seed production. Md.

Tobacco cropping system investigation. Mass.

Cooperative tobacco investigations. (P) W.Va.

Growing tobacco of high nicotin content for use as an insecticide. N.Y.State.

Trials with cigarette and other types of tobacco. (Windsor Tobacco Substation) Conn.State.

Tobacco investigations.--To determine whether or not various types of dark fire-cured and Burley tobacco can be successfully grown under irrigation. N.Mex.

Relation of chemical characters to quality in leaf tobacco. Ky.

Tobacco experiment. Pa.

Cooperative tobacco investigations. W.Va.

Turnips.

Variety tests of stock turnips. (Northwest Substation, Crookston) Minn.



FIELD CROPS--Variety Tests, General.

- Crop variety test. Colo.
- Crop variety test. Tex.
- Variety tests of farm crops. Ga.
- Varietal tests of farm crops. (Morris Substation) Minn.
- Testing varieties of farm crops.--To determine the relative merits of all the more or less promising varieties of farm crops that can be found, and which may be of interest to Indiana agriculture. Ind.
- Testing of crop varieties adapted to the region including strains of clover and varieties of oats, spring wheat, barley, flax, peas, and potatoes. (Upper Peninsular Substation, Chatham) Mich.
- Variety trials of various crops. (Fentress County Substation) Tenn.
- Tests of species and varieties of farm crops. N.J.
- Cooperative variety trials of farm crops. (Duluth and Waseca Substations) Minn.
- Variety tests of common field crops. (Raymond Substation) Miss.
- A study of varietal adaptations and fertilizer requirements on Red River Valley Soils. Tests of varieties of farm crops. (Northwest Substation, Crookston) Minn.
- Crop adaptation, adobe buildings, and dry land studies at Cheyenne Wells. Colo.
- Crop adaptation at Akron, Colo. Colo.
- Variety studies of field crops suited to Coastal Plains soils. (South Mississippi Substation at Poplarville) Miss.
- Variety studies for field crops for the Delta. (Delta Substation) Miss.
- Field crop investigations under both dry farming and irrigation. Varietal trials with wheat, oats, barley, rye, field peas, corn, alfalfa, sunflowers, grasses, potatoes, and other minor crops. (Burns Substation) Oreg.
- Cooperative crop experiments. Varietal and cultural tests with most of the important crops, obtaining data for particular conditions and localities. Ariz.

FIELD CROPS--Velvet Beans.

- Velvet bean varieties. (Calhoun Substation) La.
- Variety tests with velvet beans. S.C.
- Crop rotation studies with velvet beans, corn, and sweet potatoes. Fla.
- A chemical study of the velvet bean.--To determine in what respect the velvet bean is deficient in nutritive properties or is otherwise injurious. (A) Ala.

Vetch.

- Vetch variety tests. Ala.
- Vetch variety test. (Sandpoint Substation) Idaho.
- Tests of species and varieties of vetches.--To learn the comparative value of the various species for forage, soil improvement and seed production. (Fairbanks and Matanuska Substations) Alaska.
- Testing vetches for yields of hay. Va.
- Forage crops investigations. Varietal trials with vetches for forage and seed. Oreg.
- Variety test of field peas, soy beans, vetch, and serradella. (North Central Substation, Grand Rapids) Minn.
- Vetch and Austrian winter peas.--Time and rate of seeding. Ala.
- Forage crops investigations. Nursery trials with vetches and related plants, new vetch varieties, and horse bean varieties. Oreg.
- Vetch and grain mixture for hay. Ala.
- Forage crops investigations. Cultural trials with vetches and related plants and with horse beans. Oreg.
- Forage crops investigations. Succession of crops or rotation trials with vetches and other forage crops. Oreg.
- Vetches and Melilotus, with and without oats, for hay. Ala.
- Winter vetch as a cover and green manure crop. R.I.
- Value of vetch turned under at different dates in comparison with nitrate of soda. (P) Ala.
- Value of vetch sown in winter rye on sandy soils. (Spooner Substation) Wis.
- A study of the hard seed in vetch and other legumes. N.Y.Cornell.



FIELD CROPS--Wheat. Genetics and Breeding.

Mendelian studies with wheat and oats.	N.Y.Cornell.
Inheritance of stem rust resistance of wheat. (A)	N.Dak.
Correlation of length of head and yield of wheat.	Ohio.
Wheat breeding.	Mich.
Wheat breeding.	Tex.
Breeding wheat.	N.Y.Cornell.
Breeding work with wheat.	Ky.
Breeding work with wheat.	S.C.
Plant breeding--wheat.	Okla.
Wheat breeding in the Gallatin Valley.	Mont.
Wheat breeding at Madison Station; wheat breeding in northern Wisconsin; variety tests of winter wheat and spring wheat.	Wis.
Wheat breeding.--To develop, if possible, both spring and winter varieties which shall be suited to the Alaska climate.	Alaska.
Wheat- practical wheat breeding. The production of a wheat variety combining the stem rust resistance (and baking qualities) of Kota with certain desirable characters of other varieties such as strength of straw and lack of awns of Marquis.	N.Dak.
Cooperative wheat breeding and uniform winter hardiness.	Mont.
Breeding with oats and wheat. (Aroostook Substation)	Me.
Cereals: Breeding and selection of pure strains of wheat, barley, oats, and rye. (Union Substation)	Oreg.
Breeding experiments with wheat, oats, corn, and sorghums.	Kans.
Wheat breeding investigations, including the improvement of commercial varieties by the pure line method of breeding and hybridization and subsequent selection.	Mo.
Cereal breeding investigations, primarily with wheat, to develop high-yielding and disease-resistant varieties. (Moro Substation)	Oreg.
The development of rust resistant varieties of wheat. (A)	Minn.
Wheat improvement.	Pa.
Plant-to-row selection of wheat.	S.C.



FIELD CROPS--Wheat. Genetics and Breeding. (Cont.)

- Improvement of wheat by hybridization and selection. Ind.
- Improvement of winter wheat through breeding and selection.  
(North Platte Substation) Nebr.
- Varietal improvement with wheat.--To improve existing varieties by selection and by crossing to produce new strains superior to those now grown. (Dickinson Substation) N. Dak.
- Pure line studies with wheat. Iowa.
- Wheat: Pure line selection and hybridization as methods of improvement of wheat. Ohio.
- Breeding to increase the gluten content of California bread wheat. (Berkeley Substation) Calif.
- To produce improved varieties of spring wheat. Minn.
- To produce hardy winter wheats of high yielding ability, high hulling quality and which likewise contain other desirable agronomic characters. Minn.
- Wheat: Breeding work in winter wheat.--To test hardiest strains of winter wheat, and by breeding these to develop new strains sufficiently hardy for North Dakota conditions. N. Dak.
- The culture and improvement of small grains, including wheat, oats, barley, rye, etc. Ariz.

Variety Tests.

- Variety tests of wheat. Ky.
- Wheat variety tests. S. C.
- Variety tests with wheat. (Appomattox, Bowling Green, Chatham, Lightfoot, Martinsville, Staunton, and Charlotte Court House Substations) Va.
- Variety tests of wheat.--To determine the yields of different varieties of wheat as shown by competitive tests. Okla.
- Wheat breeding investigations. Variety studies with wheat. Iowa.
- Variety tests of wheat, spring and winter. (North Central Substation, Grand Rapids) Minn.
- Variety tests of spring wheat.--To learn which are the best varieties for general planting. (Fairbanks, Matanuska, and Rampart Substations) Alaska.

FIELD CROPS--Wheat. Variety Tests. (Cont.)

- Variety tests with corn, wheat, and soy beans. (Ridgely Substation) Md.
- Crop variety tests. Corn, wheat, oats, soy beans. Del.
- Varietal experiments with winter wheat and barley, spring wheat, barley, oats, and field peas. (Sandpoint Substation) Idaho.
- Varietal trials of corn, wheat, oats, lespedeza and soy beans. Tenn.
- Small grain investigations. Variety tests with wheat, oats, and barley. (Aberdeen and Sandpoint Substations) Idaho.
- Small grain variety tests.--Testing of standard varieties of wheat, oats, rye, and barley. (Statesville Substation) N. C.
- Cereals: Varietal trials with barley, wheat, oats, peas, flax, and rye. (Union Substation) Oreg.
- Varietal trials, including wheat, barley, oats, field peas, corn, and potatoes. (Moro and Hood River Substations) Oreg.
- Cereal investigations. Varietal trials of winter and spring grains, including wheat, oats, and barley. Oreg.
- A study of the varieties of wheat with a view to their improvement. Pa.
- Wheat variety tests and improvement by selection and breeding. Md.
- Wheat. Variety testing and head selection for early maturity. Wyo.
- Spring wheat varieties in the Gallatin Valley. Mont.
- Spring wheat varieties in the Judith Basin. (Judith Basin Substation) Mont.
- Spring wheat varieties in northern Montana. (North Montana Substation) Mont.
- Spring wheat varieties on dry land in the Yellowstone Valley. (Huntley Substation) Mont.
- Winter wheat varieties in the Gallatin Valley. Mont.
- Winter wheat varieties in the Judith Basin. (Judith Basin Substation) Mont.
- Winter wheat varieties on dry land in the Yellowstone Valley. (Huntley Substation) Mont.



FIELD CROPS--Wheat. Variety tests. (Cont.)

Small-grain investigations. Variety tests with wheat, oats, barley, and miscellaneous grains under high altitude conditions.  
(High Altitude Substation)

Idaho.

Varietal experiments with wheat.--To determine what varieties are best adapted to this region, including spring and winter wheat.  
(Dickinson Substation)

N. Dak.

Cereal investigations. Nursery trials with wheat and rye selections and wheat-rye hybrids.

Oreg.

Tests of new selections of wheat. (Ridgely Substation)

Md.

Testing of rust-resistant wheats. (Archer)

Wyo.

Wheat: Varieties, pure line selections, and cultural work.

Ohio.

Cereal investigations. Wheat: Variety tests and cultural experiments.

Va.

Wheat investigations. Variety tests - selection - rate and date of seeding.

W. Va.

Variety testing, breeding, acclimatization and cultural studies of small grains.--To improve the quality and yield of small grains, including winter wheat, oats, spring wheat, rye, winter barley, and winter emmer.

Nebr.

Cereal variety tests.--To test new and standard varieties of spring wheat, oats, barley, and winter rye as to yielding capacity, resistance to disease, and trade value as measured by milling and baking tests.

N. Dak.

A study of the performance of different varieties of spring wheat, barley, and emmer and their adaptation to northern and central Illinois conditions.

Ill.

A study of the performance of different varieties of winter wheat and of their adaptation to northern, central, and southern Illinois conditions.

Ill.

Variety trials and cultural requirements with small grains.--Wheat, oats, and barley in rows to determine the relative value of varieties of cereals for California conditions, especially with regard to yield. (Davis Substation.)

Calif.



FIELD CROPS--Wheat. Culture Experiments.

Wheat production: Cultural methods. Variety studies, selection, and breeding.	Ark.
General culture studies with wheat.	Iowa.
Fallow and cultural tests with wheat. (High Altitude Substation)	Idaho.
Harrowing winter and spring wheat in the Judith Basin.(Judith Basin Substation)	Mont.
Comparison of effect of fall plowing, spring plowing, and no plowing, on corn, potatoës, and wheat. (Northwest Substation, Crookston)	Minn.
Tillage investigations. Wheat seed bed preparation.	Kans.
Rates of seeding spring wheat. (Northwest Substation, Crookston)	Minn.
Rate of seeding winter rye and winter wheat. (North Central Station, Grand Rapids)	Minn.
Rate of seeding winter wheat on non-irrigated bench lands.	Mont.
Rate and date of seeding Marquis, Kota, and Nodak wheat.-- To determine the effect of different rates and dates of seeding on the relative yield of standard varieties of wheat. (Dickinson Substation)	N.Dak.
Rate and date of planting winter wheat, barley, and spring wheat. (Sandpoint Substation)	Idaho.
Rate and date of seeding oats, wheat, barley, and rye.	Minn.
Rate and date of sowing experiments, primarily with wheat. (Moro Substation)	Oreg.
Date-of-planting experiments with wheat, oats, and barley; also, cotton and corn. (Jackson Substation)	Tenn.
Time of seeding winter rye and winter wheat. (North Central Substation, Grand Rapids)	Minn.
Rate, date, and depth of seeding winter wheat on dry land. (High Altitude Substation)	Idaho.
Methods of seeding winter wheat; in corn, fall plowing, and grain stubble. (Northwest Substation, Crookston)	Minn.
Experiments with the furrow method of seeding winter wheat. (Colby Substation)	Kans.

FIELD CROPS--Wheat. Culture Experiments. (Cont.)

Test of furrow method of seeding wheat; grain varietal tests; cultivation tests of corn; etc. Kans.

Straw mulching of winter wheat in the Judith Basin. (Judith Basin Substation) Mont.

Fertilizer Tests.

Fertilizer experiment with wheat. (Martinsville and Staunton Substations) Va.

Triangular fertilizer experiments with cotton, corn, and wheat, followed by cowpeas, grown in rotation. Ga.

Effect of various combinations of fertilizers on quality of wheat, corn, and soy beans. Del.

Use of nitrate of soda on wheat. Fall and spring applications. Ky.

The residual effect of fertilizers upon yields of wheat and red clover. Ill.

Milling and Baking.

Studies of the chemical aspects of certain milling processes. Chemical and milling tests on wheat produced in various agronomic experiments and comparative chemical and milling behavior of Kanred and other winter wheat varieties. Kans.

The effect of variety, soil, climatic conditions, and disease upon the milling and bread value and chemical composition of wheat. (A) N. Dak.

Influence of climate upon milling and baking quality of hard wheats. Mont.

The strength of wheat flour- colloidal and other factors which may be involved in flour strength. (A) Minn.

Factors controlling milling and baking qualities in wheat. Comparative study of Durum, Poulard, and bread wheats. (A) Ariz.

Durum wheat investigations.--To determine the value of different types of Durum wheat for use in manufacture of food products. N. Dak.

Baking project with Arizona wheats, beginning with strains of Early Bart wheat. (P) Ariz.

A study of the bread-making qualities of Colorado flours. Colo.



FIELD CROPS--Wheat. Milling and Baking. (Cont.)

Michigan wheats and flours.		Mich.
Investigation of the baking qualities of Missouri flour.		Mo.
Milling and baking tests of Montana wheats.		Mont.
The relation of certain chemical and physical-chemical characteristics of Nebraska wheat to its milling and baking quality.	(A)	Nebr.
The milling and baking qualities of Ohio wheats.	(P)	Ohio.
Baking qualities and methods of baking of Wyoming flour.	(P)	Wyo.
Tests of quality of strains of wheat from the plant breeding section.		Minn.
Effect of storage on milling and baking quality and chemical composition of wheat.		N.Dak.
Tests of quality of variety of wheat from the Farm Crops Section.		Minn.
The biochemical changes in frosted wheat and their effects on the breadmaking quality and market value.	(A)	Mont.
Effect of yellowberry on milling and baking value of hard wheats.		Mont.
A study of the value of present methods of examining wheat samples.		N.Dak.

Chemical Studies.

Protein analyses of Montana wheats.		Mont.
The protein content and yield of wheat, nitrogen content of the soil, when cropped continuously to wheat and when cropped under a definite rotation system.	(A)	Idaho.
Factors which influence the protein content of hard spring wheat.	(P)	N.Dak.
Factors influencing the quality of Montana wheats.		Mont.

Miscellaneous.

Wheat investigations.--A study of some factors that affect the quality of wheat.--A study of the effect of different systems of fertilization, variety, and climate on the quality of wheat. Etc., etc.	(P)	Okla.
Studies of environment and wheat yields.		Md.



FIELD CROPS. Wheat. Miscellaneous. (Cont.)

- Correlation of meteorological factors with wheat yields. Md.
- Wheat grown in a rotation. R.I.
- Spring wheat in the Judith Basin crop rotation, (Judith Basin Substation) Mont.
- Spring wheat in northern Montana crop rotations. (North Montana Substation) Mont.
- Winter wheat in the Judith Basin crop rotation. (Judith Basin Substation) Mont.
- Winter wheat in northern Montana crop rotations. (North Montana Substation) Mont.
- Continuous culture of wheat.--To determine the difference as observed in yields between continuous culture and crop rotation with special reference to the leading crops of Oklahoma and under Oklahoma conditions, wheat being the index crop. Okla.
- Effect of continued cropping upon the yield of spring wheat. (Sandpoint Substation) Idaho.
- Continuous cropping plats of oats, barley, and wheat. Two tons manure each year per acre. (West Central Substation) Minn.
- Laboratory studies on the differences in wheat yields in the crop rotation experiments, after corn, soy beans, and tobacco. Ky.
- Wheat in irrigated rotations in the Yellowstone Valley. (Huntley Substation) Mont.
- Irrigated v. non-irrigated wheat for seed. Mont.
- Flax-wheat mixture experiment.--To determine whether flax and wheat sown together will return a greater profit than either crop sown alone. (Dickinson Substation) N.Dak.
- Flax - wheat mixtures under irrigation. Mont.
- Flax - spring wheat mixtures in the Judith Basin. (Judith Basin Substation) Mont.
- The continuous growing of wheat and rye with and without a legume cover crop. N.J.
- Effect of fall v. spring seeding of timothy upon yield of wheat. Ohio.

FIELD CROPS. Wheat. Miscellaneous. (Cont.)

Winter wheat nursery: Kansas white winter wheats under irrigation. (Burns Substation)	Oreg.
Wheat production and storage investigations. Seed wheat studies.	Iowa.
Grain dockage investigations. Examination and mechanical analyses of wheat and screenings.	Minn.
Effect of stage of maturity at harvest upon the germination power of wheat, oats, and barley seed.	Wyo.
Dormancy studies with winter wheat. (A)	Mont.
Uniform winter hardiness test (wheat). (Judith Basin Substation)	Mont.
The resistance of wheat varieties to wheat scab.	Minn.
Studies of varietal resistance of wheat, barley, rye, and oats to root and culm rots.	Minn.
Yellow-berry in wheat. The cause of yellow-berry in Turkey Red wheat in the Columbia Basin, and means for its control.	Oreg.
Effect of date of harvest upon germination of wheat.	Mont.
Wheat: Effect upon subsequent development of clipping the spring growth.	Ohio.
The effect of straw mulch to wheat upon the yield of wheat and the following clover.	Ohio.
Sterile spikelets in wheat. (A)	Del.
Cereal investigations. Multiplication and comparison trials of winter wheat selections.	Oreg.
Growing multiplication plat of Mammoth Red wheat for distribu- tion. (Ridgely Substation)	Md.
Influence of crop rotation and crop sequence upon yield, test weight, and protein content of spring wheat grown on manured and unmanured Fargo clay.	N.Dak.
Tests of winter wheat produced on fallow. (Gillette)	Wyo.
An investigation of the Hessian-fly-resistance qualities of different varieties of wheat.	Mo.
The relation of potatoes and nitrates to wheat yields. (A)	Ohio.
Wheat.--To study the validity of the alleged high yield of wheat when following potatoes and to offer a suggestion for the behaviour of wheat when grown after this crop.	Ohio.



HORTICULTURE

Almonds

Almond breeding. (Davis Substation)

Calif.

Pollination studies. A study of the pollination requirements of the various deciduous fruits, including a study of the factors causing sterilization in such fruits as the almond and cherry. (Berkeley and Davis Substations)

Calif.

Irrigation of an old almond orchard for the purpose of rejuvenating the trees. (Davis Substation)

Calif.

Pecan, English walnut, and almond experiment (a) to ascertain whether New Mexico climatic and soil conditions are suitable for the growing of these nut trees; (b) to study the different methods of preventing winter injury to the trees; and (c) an investigation on originating, if possible, a late blooming almond.

N. Mex.

Apples

Genetics and Breeding.

Apple breeding investigations.

(A) Idaho.

Apple breeding investigation.

Oreg.

Fruit breeding, especially apples and strawberries.

Nebr.

Apple breeding: (a) Bud selection, (b) growing apple seedlings from seeds of fruits from trees chosen as possessing special merit, and (c) crossing and hybridizing of apples. (A)

Ill.

Apple breeding: Study of heredity in the apple, the unit characters or groups of characters which follow Mendel's law, and the application of the principles of breeding in development of desirable winter varieties.

(A) Iowa.

Breeding new varieties of apples

(P) Me.

Breeding apples for late blooming habit.

Mo.

Breeding late blooming varieties of apples.

Va.

Pollination: To determine how and to what extent standard varieties of apples and plums are self-barren and also to determine which of the standard varieties may best be used as pollinizers for self-barren and partially self-barren varieties. (South Haven Substation)

Mich.

Pollination of the apple: Studies of the causes leading to the reported self-sterility of some varieties and of the possible benefits derived from cross-pollination.

(A) W. Va.



HORTICULTURE--Apples. Genetics and Breeding. (Cont.)

A study of the causes of cross-and self-sterility in the apple, through a cytological and genetic study, and of the sterility and compatibility relationships of different varieties through pollination experiments. (A) Me.

Variety Tests.

Apples: Variety test. (Auburn and Talledega Substations) Ala.

Apple variety tests.--To ascertain if apples can be grown. (Sitka Substation) Alaska.

Apples: Variety tests. Miss.

Variety tests with apples. S.C.

Variety orchard of apples and miscellaneous tree fruits. Ky.

Apples: Variety studies, including field observations and orchard tests to gain information relative to their behavior, commercial possibilities, and adaptation for the home orchard or garden. Va.

Test of a number of new varieties of apples and of the one- and two-year old apple graft: (a) The testing of twenty new varieties of apples such as the Delicious, King David, Champion, Apple of Commerce, Stayman Winesap, etc., (b) to secure data on the longevity of these varieties upon very sandy soil, (c) to ascertain whether the one-year-old or two-year-old apple graft is the better for planting under Southern New Mexico conditions. N.Mex.

New apples for Wisconsin. Wis.

Varieties of apples best adapted to Wisconsin conditions. Wis.

Study of the products of orchards of the State to determine the best commercial varieties of apples for coastal conditions. (P) R. I.

Variety tests of apples, peaches, pears, plums, and cherries. Md.

Summer apples:--To test the commercial production of early apples in eastern North Carolina.--To determine the most profitable varieties of summer apples. (Willard Substation) N.C.

Horticultural investigations; The introduction and testing of apples, pears, and plums, and some small fruits, to determine their winter hardiness and adaptability to high altitudes. (High Altitude Substation) Idaho.

HORTICULTURE--Apples. Variety Tests. (Cont.)

Apple orcharding trials; comparative varietal studies; and storage endurance. Long-time studies of a 40-variety apple orchard as to growth, yields, winter injuries, storage endurance, etc. Vt.

A study of the strains of the Baldwin apple. N.Y. State.

Cultural Experiments.

Apple orchard experiment--cultural methods. Pa.

A comparison of cultural methods in the apple orchard. Pa.

Cultural tests of apples and crabs. (Northwest Substation, Crookston) Minn.

Comparison of cultivation and heavy mulching for apples and pears. Mass.

Orchard culture.--To determine the effect of certain cultural practices upon an apple orchard (Union Fruit Farm). Nebr.

Test of cover crops for apple orchards. Mass.

Apple orchard experiment with cover crops. Pa.

Sod v. tillage for apple orchards. (Hancock and Colesville Substations) Md.

Fertilizer Tests.

Physiological and nutritional study of apple trees. N.Y. State.

Fertilizers for apples. N.Y. State.

Fertilizers for apples and peaches. W.Va.

The fertilization of apple orchards. (Salisbury, Hancock, Colesville, Mt. Airy, and Berlin Substations) Md.

Plant food studies with apples. N.J.

Apple orchard experiment with fertilizers. Pa.

Local orchard experiments. Response of apple trees to fertilizers under different soil conditions. (Salem, Winchester, Crozet, Amherst, Appomattox, and Berryville Substations) Va.

Influence of fertilizer applications upon the yield, growth, and other physiological functions of the apple grown in different soils. (A) Pa.



HORTICULTURE--Apples. Fertilizer Tests. (Cont.)

Apple fertilization.--To study the effects of elements and their combinations on the growth and production of apple trees. N.C.

Influence of fertilizers on yield and quality of apples. Pa.

Effect of nitrogen fertilizers on apple tree growth and yield. Me.

Apple fertilizer experiment.--To compare the effect of nitrogen fertilizer in different forms, alone and in combination with potassium and phosphorus fertilizers. (Hillview and Olney Substations) Ill.

The influence of nitrogen, potash, and phosphoric acid in apple production. Del.

An experiment to determine the relative value of sulphate of ammonia and nitrate of soda as fertilizers for apple trees standing in sod. Pa.

Apple fertilizer experiment (on Ben Davis apple orchard) to test the relative value of sulphate of ammonia, nitrate of soda, lime, phosphate, and potash in an apple orchard. Mich.

Pruning.

Pruning the apple. Minn.

Apples: Pruning tests. Miss.

Physiological effect of pruning apple trees. (A) W.Va.

Pruning and fertilizer experiment on bearing apples.--To compare the effects of pruning and no pruning, and of a nitrogen fertilizer, on bearing apple trees. Ill.

Pruning experiment on young apples and peaches.--To compare the California "long system" and the modified central leader types of pruning for the development of framework branches and to note the effect of a nitrogen fertilizer on the two systems of pruning. Ill.

Effects of pruning on growth, with apples, cherries, grapes, and gooseberries. N.Y.; Cornell.

Kind and amount of pruning for apple trees in different conditions of vigor. (Salem, Winchester, Crozet, Amherst, Appomatox, and Berryville Substations.) Va.

Apple pruning.--To determine the comparative value of different systems and different amounts of pruning with apple trees. (Swannanoa Substation) N.C.



HORTICULTURE--Apples. Pruning. (Cont.)

Apple pruning and training. (Graham Substation) Mich.

Apple pruning experiment, including pruning to vase-shaped trees, to semi-leaders, to leaders and summer pruned. N.H.

Apple pruning experiment.--To compare the effects of no pruning, heading back, thinning and severe thinning on young apple trees. Ill.

Studies on the pruning of old apple trees. N.Y. Cornell.

Spraying and Dusting.

Spraying of apple orchards. Iowa.

A comparison of spraying and dusting on apples and peaches, especially to try new dusts. Conn.State.

Effectiveness of dusting for the general treatment of apple orchards. N.Y.State.

Fruit Spur Studies.

Causes and means of control of fruit bud formation on the apple. (A) N.H.

Apple variety fruit spur study. Mass.

Factors influencing the functioning of apple fruit spurs, with reference to biennial fruiting. Wis.

The composition of bearing and non-bearing fruit spurs throughout the year. Md.

Stock and Scion Studies.

Orchard stocks for apples. Iowa.

Stocks for commercial varieties of apples. (Horticultural Substation) Mont.

Interrelation of stock and scion in apples. (A) Mass.

Influence of root grafts on scions of apples. Conn.State.

Apple orchard experiment, selection and stocks. Pa.

HORTICULTURE--Apples. Miscellaneous.

- Working out the anatomy and histology of the apple, Pyrus malus, with the idea of bringing together a complete account of this one plant which can be used as a reference in considering the structure of this and allied species. N.Y.Cornell.
- Factors which influence the fertility and sterility of apple varieties, and the setting of fruit. (A) Ark.
- Nutritive condition of apple tree tissue and regularity of fruiting. N.Y.Cornell.
- Effect of pruning and nitrogen fertilizer upon the off-year production of Wealthy apple trees. Wis.
- Studies on fruit spur and biennial bearing of apples. (Hancock Substation) Md.
- Methods of propagating apples. N.Y.State.
- A study of methods of propagating apples from cuttings. (P) S.C.
- Propagation of apples from selected buds. N.Y.State.
- The propagation of apple trees on their own roots. Md.
- Rate of growth of fruits of the apple. N.J.
- Relation of growth and fruiting of the apple. Mont.
- Effects of fruiting on growth and yield of the apple, peach, and grape. (A) Mo.
- The growth and bearing habits of apple trees as influenced by bending and spreading the branches. N.Y.Cornell.
- Thinning apples. Mont.
- Thinning experiments with apples. (Hood River Substation) Oreg.
- Cold storage for Iowa - Apples. Iowa.
- Apple storage.--Construction of storage house and its adaptability. N.C.
- Keeping quality of apples as related to acidity changes and temperature control during cold storage. Iowa.
- The keeping qualities of apples in cold storage as affected by the health and vigor of the trees. A study of the conditions which favor and oppose the internal browning of the Yellow Newtown when grown under Pajaro Valley conditions. (Berkeley Substation) Calif.

HORTICULTURE--Apples. Miscellaneous. (Cont.)

Influence of cultural methods and conditions of growth on the keeping qualities of apples.		Pa.
Polishing in relation to keeping quality.		Oreg.
Humidity in relation to loss of weight and volume		Oreg.
Time of picking in relation to tonnage and quality.		Oreg.
Measurable characteristics of maturing and ripening apples. (A)		Wash.
Application of pressure test for maturity of apples.		Oreg.
A study of the nature, causes, and prevention of winter injury to fruits, with special reference to the apple, including the root system. (A)		N.H.
Relation of orchard practices to winter injury of apple trees.		N.Y.State
Testing the hardness of apples.		Wyo.
Humus and its relations to the physiological activities of the apple.--To study different methods of handling orchard soils as shown by the effect on yield of fruit and longevity of trees. (A)		Iowa.
Factors that influence the nutrient and water supply of apples, and their relation to the occurrence of stippen.		N.Y.Cornell.
Studies of the root system of the apple tree under different methods of soil management. (A)		Ind.
A study of the fundamental factors concerned in the phenomena of fruit production in the apple and other fruits. (P)		Del.
Ringling of apple trees. (P)		Ohio.
The relation between shape and yield of apple trees. (P)		Me.
A study of the causes and forms of russeting of apples		N.J.
Commercial value of dwarf apple trees.		Va.
Germination and storage of the apple seed.		Iowa
Survey of the Connecticut apple industry (P)	Conn.	Storrs.
Economic study of the apple industry in Oxford County and vicinity for 1925 to 1929. (P)		Me.



HORTICULTURE--Apples. Miscellaneous. (Cont.)

- Economic study of the apple industry. N.J.
- Economics of the apple industry in the Cumberland Valley Region. Pa.  
(P)
- Field study to determine the present status of the Maine apple industry. (P) Me.
- Marketing Calhoun County apples. Ill.
- Apple orchard survey, including studies with reference to diversity of crops. (Hood River Substation) Oreg.
- Variation in composition of Laurel (apple) trees. (A) Ind.

Artichokes.

- Artichokes.--Yuma and Tucson Stations. (a) Seed test with resultant selection of strain adaptable to Arizona conditions.  
(b) Development and continuation of this strain vegetatively. Ariz.

Asparagus.

- Asparagus investigations: (a) Asparagus crown selection studies at time of planting. (Davis Substation) Calif.
- Asparagus cultural methods. Ill.
- Influence of various physical and chemical treatments upon the germination of asparagus seed. (Davis Substation) Calif.
- Study of the conditions affecting the production and vegetative propagation of Washington asparagus. (Market Garden Substation) Mass.
- Crown development in common asparagus (Asparagus officinalis). (Davis Substation) Calif.
- Sexuality in common asparagus (Asparagus officinalis). (Davis Substation) Calif.
- Effect of size of plants at planting time upon the growth and yield of asparagus. N.J.
- Fertilizer experiment with asparagus. N.Y. Cornell.
- Methods of fertilizing asparagus. Ill.
- Comparison of spring and summer applications of commercial fertilizers on asparagus. Md.
- Effects of potash on yield and quality of asparagus. Md.
- Plant food studies with asparagus. N.J.
- The specific effect of common salt on asparagus. R.I.

HORTICULTURE--Avocados.

Variety, propagation, and planting tests of pear, avocado,  
Japanese persimmon, fig, and other fruits. Fla.

Beans.

A study of the manner of inheritance of the various economic  
characters in beans. (A) Ariz.

Bean breeding experiment.--To develop a prolific bearing pole  
Lima with a white color, free from the objectionable blue-  
gray coat when cooked. Virgin Islands

Bean breeding.--To determine the bean varieties best adapted to  
local conditions and to obtain improved strains or crosses  
from them. Porto Rico.

The breeding of varieties of beans resistant to the various  
diseases of the bean. N.Y. Cornell.

Breeding field and garden beans for disease resistance. N.Y. Cornell

Improvement of beans grown for canning. Wis.

Comparison of seed strains of string beans. Oreg.

Garden and field bean and pea investigations. Variety tests.  
(Aberdeen Substation) Idaho.

Davis County Experiment Farm.-- (a) Onion variety test; (b)  
Comparison of sweet Spanish types; (c) Green bean variety test;  
(d) Irrigation studies of canning peas; (e) Cost of producing  
strawberries; (f) Miscellaneous studies. Utah.

Cause and prevention of sclerema and hardshell in beans. N.Y. State.

Field and garden pea and bean investigations. (Aberdeen Sub-  
station) Idaho.

Pot culture tests of soil treatment for beans. N.Y. State.

Anthraxnose resistance and freedom in bean seed. (P) Md.

Investigations with the Hopi Lima bean. (Davis, Kearney Park,  
and Meloland Substations) Calif.

Bean experiments. (Archer) Wyo.

Beans. N.Y. State.

HORTICULTURE--Beets.

- Comparison of seed strains of beets. Oreg.
- Beet culture with stable manure substitutes. R.I.
- Autumn-plowed mammoth clover, cowhorn turnips, soy beans, and spring-plowed mammoth clover, rye, timothy, for early lettuce and beets. R.I.
- Red clover plowed under in autumn and spring as a green manure crop for lettuce and beets. R.I.
- Studies of the germination of beet seed. N.J.
- Influence of beets on following crops. R.I.

Blackberries.

- Breeding work with dewberries and blackberries. Tex.
- Crossing and selection for the improvement of blackberries and dewberries. (P) R.I.
- Small fruit experiment; (a) To collect phenological data on a number of different varieties of strawberries, blackberries, raspberries, currants, and loganberries, (b) to ascertain if possible, the best varieties of these different fruits for commercial and home plantations. N.Mex.
- Blackberry culture: To test the raising of blackberries and dewberries as a supplementary crop to the strawberry. La.  
(Fruit and Truck Substation, Hammond)

Blueberries.

- Strain tests of blueberries for the U.S.D.A. R.I.
- Blueberry tests.--Testing hybrid varieties originated in New Jersey. Alaska.  
(Sitka Substation)
- Blueberry propagation. (P) Miss.
- Blueberry culture. Minn.
- Determination of fertilizer requirements of the blueberry. Fla.
- Soil treatments for blueberries. (P) R.I.
- Blueberries. Miss.
- Blueberry investigations. Mass.



HORTICULTURE--Broccoli.

Broccoli investigations. Comparative trials of 13 strains of broccoli as to earliness, yield, quality, and hardiness. Oreg.

Cabbage.

Mendelian studies with cabbage. N.Y.Cornell.

Breeding cabbage. N.Y.Cornell.

Cabbage breeding. Del.

Breeding experiments with late cabbage. Pa.

Selection of midseason "yellows" resistant strains of cabbage best suited to Maryland. Md.

Cabbage seed selection for disease resistance. Mo.

"Wilt resistant" cabbage in comparison with others.  
(Jackson Substation) Tenn.

Early cabbage: The relation of seed selection to earliness, yield, and uniformity of type. Pa.

Cabbage variety tests. (Swannanoa Substation) N.C.

The relative value of varieties of late cabbage for different purposes. Pa.

Comparison of seed strains of late cabbage. Oreg.

Methods of growing seeds of especially adapted varieties of cabbage and cauliflower. Md.

Cabbage nutrition studies. Mich.

A study of the fertilizer requirement of cabbage and tomatoes. Pa.

Cabbage fertilizer experiments.--To determine the effect of commercial fertilizers and barnyard manures on yields, how frequently to irrigate for best yields, and to test different kinds of covering on cold frames in starting seedlings. N.Mex.

Cabbage culture with stable manure substitute. R.I.

A study of the root development of cabbage seedlings as influenced by culture and environment previous to the final transplanting. Pa.

Yellows-resistant cabbage. Iowa.

HORTICULTURE--Cabbage. (Cont.)

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|---|---------------|
| Study of hardiness in New Jersey Wakefield and Charleston Wakefield cabbage and possible bearing it may have on formation of seed shoots. | Md.           |
| Studies in cabbage seed disinfection.   | N.Y. Cornell. |
| Experiments in storing cabbage.   | Mont.         |
| Influence of cabbage on following crops.  | R.I.          |
| Influence of peas on late cabbage.  | R.I.          |
| Late cabbages following early peas, beets, potatoes, and spinach.   | R.I.          |

Cantaloupes.

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| Pollination influence on cantaloupes.  | Md.    |
| Breeding and selection with cantaloupes.   | Md.    |
| Fertilizer requirements, varieties, cultural methods and seed "place effect" of the watermelon and cantaloupe. | Mo.    |
| Manures v. fertilizers for cantaloupes.  | Md.    |
| A study of factors involved in the production and shipping of cantaloupes.                                     | Ark.   |
| A study of costs and methods in marketing cantaloupes in the San Luis Valley.                                  | Colo.  |
| Experiments with sweet potatoes, eggplants, cantaloupes, and peppers. (Ridgely Substation)                     | Md.    |
| Cantaloupe culture.--To study the best means of increasing yields.   | N.Mex. |

Carrots.

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|---|--------|
| Comparison of seed strains of carrots.  | Oreg.  |
| Variety test of stock carrots. (Northwest Substation, Crookston)                                | Minn.  |
| Seed production: Production studies with carrot and parsnip seed growing. (Aberdeen Substation) | Idaho. |
| Carrot culture with stable manure substitutes.  | R.I.   |
| Influence of carrots on following crops.  | R.I.   |

HORTICULTURE--Cauliflower.

Comparison of seed strains of cauliflower. Oreg.

Conditions affecting heading of late crop of cauliflower in the southern sections of the State. (Ridgely and College Park Substations) Md.

Methods of growing seeds of especially adapted varieties of cabbage and cauliflower. Md.

Production of healthy cauliflower seed. N.Y.State.

Celery.

Breeding of horticultural plants, including tomatoes, small fruits, and celery. Utah.

Comparison of seed strains of celery. Oreg.

Fertilizer experiments with celery on muck soil. (Wayne Co.) N.Y.Cornell.

Effect of various fertilizers on growth and yield of celery. Fla.

Celery culture with stable manure substitutes. R.I.

Oats as a green manure for celery. R.I.

Oats, rye, and timothy as green manure for late celery. R.I.

Wheat as a green manure for celery. R.I.

Studies of the germination of celery seed. N.J.

Premature seeding of celery. Mont.

A study of the causes of premature development of seed stalks of celery. N.Y.Cornell.

An investigation of the changes in chemical composition of celery during storage. N.H.

Truck crop production:--(a) Spinach, (b) head lettuce, and (c) celery. Utah.



HORTICULTURE—Cherries.

- Cherry breeding investigation. Oreg.
- Cherry pollination studies. Idaho.
- Pollination studies: A study of the requirements of various deciduous fruits, including a study of the factors causing sterilization in such fruits as the almond and cherry. (Berkeley and Davis Substations) Calif.
- Cherry variety tests.--To find varieties suited to Alaska. (Sitka Substation) Alaska.
- Variety test of sweet and sour cherries and of European, native, and Japanese plums.--To test a number of the newer varieties of these different fruits, and to ascertain why the sweet cherries are not successful in New Mexico. N.Mex.
- Variety tests of apples, peaches, pears, plums, and cherries. Md.
- The nutrition of the cherry. Mich.
- Fertilizers for sour cherries.(Hudson Valley investigations) N.Y.State.
- Cherry stock investigations to determine the comparative value of Mazzard and Mahaleb stock for sour cherries. Mich.
- To study the interrelations of stock and scion in cherry graftage. Vt.
- Pruning mature cherry trees. (Hudson Valley investigations) N.Y.State.
- Pruning experiments on cherries.--To compare the effects of pruning and no pruning. Ill.
- Effects of pruning on growth, with apples, cherries, grapes, and gooseberries. N.Y.Cornell
- Study of factors affecting set of cherries in Sturgeon Bay district. Study of fruiting of cherry with reference to effects of pruning and fertilization. Wis.
- Investigation of the factors limiting the production of sweet cherries in Missouri. Mo.

HORTICULTURE--Chicory.

The forcing of Witloof chicory to determine the effect of different methods of storing roots for forcing, and of different temperatures during the forcing process. Ill.

Citrus.

The breeding and improvement of citrus fruits. (Citrus Substation, Riverside) Calif.

The importance of selection in the improvement of citrus stocks. (Citrus Substation, Riverside) Calif.

Citrus variety test, including root stocks. (Citrus Substation) Fla.

Testing of introduced and new varieties and hybrids of citrus and near-citrus, particularly as to their adaptability for use as stocks upon which to bud standard varieties. (Citrus Substation) Fla.

A study of the varieties of citrus and their relatives. (Citrus Substation, Riverside) Calif.

Observation and testing of various citrus hybrids. Fla.

A study of the fertilizer requirements of citrus trees. (Citrus Substation, Riverside) Calif.

Cooperative field trials of fertilizers and green manure crops with citrus trees. (Citrus Substation, Riverside) Calif.

Determination of the effect of various phosphoric acid carriers on the growth and production of citrus trees. Fla.

Determination of the effect of various potash carriers on the growth of citrus trees and composition of the fruit. Fla.

Determination of the effect of varying amounts of potash on the composition of oranges. Fla.

The effect of fertilization and other cultural practices upon the keeping qualities of citrus fruits. (Citrus Substation, Riverside) Calif.

Citrus fruits.--A study of cultural practices including varietal tests, bud selection studies, methods of pruning, propagation, soil improvement by use of cover crops, time and method of planting, effect of stable manure, and commercial fertilizers; and a study of effect of temperature and atmospheric humidity. Ariz.



HORTICULTURE--Citrus. (Cont.)

- A physiological study of the effect of pruning upon the growth and productiveness of citrus trees and other horticultural plants grown under irrigation in arid regions in southern California. (Riverside Substation) Calif.
- Tests of different stocks as root stocks for the Satsuma orange. Fla.
- Planning, planting, and early care of a citrus orchard for future experimental work. Calif.
- Propagation experiments with citrus plants of various kinds. (Citrus Substation) Fla.
- Citrus progeny and bud selection.--To afford a source of supply of budwood of record productivity, and data on the results of bud selection. (Citrus Substation) Fla.
- A study of the physiological factors influencing the production and development of root hairs, with particular reference to the genus citrus. Calif.
- A study of the effects of hot desiccating winds upon citrus trees in southern California. (Citrus Substation, Riverside) Calif.
- Satsuma orange culture. (Fruit and Truck Substation, Hammond) La.
- Determination of the fertilizer requirements of Satsuma oranges. Fla.
- Precoloring of Satsumas. Ala.
- Pomelo production.--Soil management, fertilizers, irrigation, insect control, and pruning. Tex.
- Scab-resistant grapefruit.--To develop a scab-resistant variety of grapefruit. Porto Rico.
- Handling and packing citrus fruits: (P) Fla.
- An economic study of the marketing of citrus fruits in Florida. (P) Fla.
- Citrus fruit studies. Tex.

Coffee.

- Comparison of commercial coffees for production.--To find coffee of good flavor which may be more prolific or more resistant to insect attacks, disease or adverse conditions of soil or climate than is the coffee grown here at present. Porto Rico.
- Can chemical manures be used profitably with coffee?--To determine what fertilizers can be applied with profit to coffee plantations in Porto Rico. Porto Rico.



HORTICULTURE--Coffee. (Cont.)

A comparison of nitrate of soda with sulphate of ammonia in coffee fertilization.--To determine if sulphate of ammonia will be effective in increasing coffee yields where nitrate of soda has failed to do so, to show the difference in effect on growth and to investigate the reasons for the same. Porto Rico.

Collards.

Breeding a better type of Collard. Ga.

Cranberries.

Investigation of cranberry problems.--To determine the underlying principles of cranberry production. N.J.

Cranberry cultural practices. Wash.

Cranberry bud development investigations. Mass.

Study of the cultivation of the high bush cranberry (Viburnum opulus). Mass.

Chemical changes in the cranberry during ripening and after harvesting. (A) Mass.

Cucumbers.

Cucumbers. N.Y.State.

Currants.

Currant variety tests.--To find varieties best suited to Alaska. (Sitka Substation) Alaska.

Currants: Variety studies, including field observations and orchard tests to gain information relative to their behavior, commercial possibilities and adaptation for the home orchard or garden. Va.

To collect phenological data on a number of different varieties of strawberries, blackberries, raspberries, currants, and loganberries, and to ascertain, if possible, the best varieties of these different fruits for commercial and home plantations. N.Mex.

Study of currants as to hardiness and fruitfulness. Wis.

HORTICULTURE--Dasheens.

To learn best varieties and cultural methods for yautias, dasheens,  
and sweet potatoes for Porto Rico. Porto Rico.

Dates.

Culture and management of date orchards with special reference to  
the improvement of the yield and quality of fruit and the  
rooting of off shoots. Ariz.

Dewberries.

Breeding work with dewberries and blackberries. Tex.

Crossing and selection for the improvement of blackberries and  
dewberries. (P) R.I.

Raspberry and dewberry fertilization.--To determine the effect of  
nitrogen, phosphorus, and potash, when used singly and in combi-  
nation, upon the yield and growth of the berries. Mich.

Blackberry culture: To test the raising of blackberries and dew-  
berries as a supplementary crop to the strawberry. (Fruit and  
Truck Substation, Hammond) La.

A study of food storage in the dewberry. (A) N.C.

A study of different methods of pruning dewberries upon growth,  
fruiting and catalase activity. (A) N.C.

Eggplants.

Experiments with sweet potatoes, eggplants, peppers, and  
cantaloupes. (Ridgely Substation) Md.

Eggplant culture with stable manure substitutes. R.I.

Figs.

Fig variety test.. Miss.

Fig varieties in California.--A study of the behavior of fig  
varieties, introduction and testing of new varieties, develop-  
ment of a key for varietal identification.(Berkeley Substation) Calif.

Variety, propagation, and planting tests of pear, avocado,  
Japanese persimmon, fig, and other fruits. Fla.

Figs--fertilizers, spraying, and varieties. Tex.

The factors affecting winter injury to figs. A study of hardiness  
in the fig. Treatments for prevention of low temperature injury. Calif.



HORTICULTURE--Filberts.

Filbert pollination and breeding investigations. Propagation by cuttings. Oreg.

Filbert pollination and breeding investigations. Crosses on Barcelona. Oreg.

Variety test of improved European filberts. N.Y.State.

Filbert storage. Effect of humidity on weight and texture of filberts. Oreg.

Floriculture.

Selection and trial of annual flowers of Indiana.--To develop strains that are adapted to the State. Ind.

Variety and hardiness tests of perennial and other flowers. (Northwest Substation, Crookston) Minn.

Flower trials.--To determine the best varieties of perennial and annual flowers and how they can best be grown. N.Dak.

Bulb-raising.--To learn if it is possible to grow bulbs, chiefly tulips, for market in southeastern Alaska. (Sitka Substation) Alaska.

Forcing bulbs.--To study the effect of storage temperature and other factors on the successful forcing of bulbs, using Gladioli. Ill.

Carnation culture. N.J.

Carnation breeding experiments.--To improve and extend the list of commercial varieties and to study the inheritance of color. N.J.

Old soil experiment.--To compare the yield and quality of carnations grown on soil used for several successive crops of carnations with those grown on new soil. Ill.

Effects of soil types on yields of varieties of carnations. Md.

A study of calyx splitting of carnations. Md.

Study of selection of carnations and rose plants in relation to yearly production of flowers.--To determine whether production may be increased by selecting cutting from high producing plants. Ill.

Cultural studies with dahlias, iris, and other ornamentals. N.J.

The study of the species hybrids in the genus Digitalis. Pa.

Certain factors influencing gladiolus culture. R.I.



HORTICULTURE--Floriculture. (Cont.)

- Variety tests of gladioli. N.Y.Cornell.
- Effect of time of ripening of bulb on forcing qualities of Gladiolus. Md.
- Environmental factors in hydrangea culture. N.J.
- Variety tests of pogon irises. N.Y.Cornell.
- Hydrogen-ion concentration and other factors influencing germination and growth of orchid seeds. N.Y.Cornell.
- Orchids from seed.--To study the factors influencing the germination of orchid seed. Ill.
- Studies with peonies. N.Y.Cornell.
- Peony growing.--To obtain information in regard to the propagation, culture, diseases, and insects of the peony. Ill.
- Variety tests of perennial phlox. N.Y.Cornell.
- Hardy primulas, species, types, and varieties of. N.Y.Cornell.
- Breeding hardy roses. N.Y.Cornell.
- Breeding experiments with Hibiscus rosa sinensis.--To obtain a greater variety of this ornamental plant. Virgin Islands.
- Rose breeding and testing.--To popularize planting of ornamentals. (Sitka Substation) Alaska.
- Rose stock experiments. N.Y.State.
- Rose studies: (a) A study of the hardiness and adaptability of different varieties and types of roses, (b) a study of stocks for roses, (c) a study of the development of an American type of rose, (d) methods of winter protection and cultural methods. N.Y.Cornell.
- Effect of heavy and light pruning on the growth and yield of roses. Md.
- Grafting stocks.--To compare the yield and quality of roses produced by plants grafted on Odorata with those produced by the same varieties grafted on the more commonly used Manetti stock. Ill.
- Rose culture. N.J.
- Breeding and selection work with snapdragon. Md.
- Relation of length of day to blooming of violets. Md.
- Improvement of zinnias. N.Y.State.

HORTICULTURE--Fruit Bud Studies.

- Relation of composition of fruit spurs to fruit bud formation. (A) N.H.
- Effect of defruiting upon chemical composition and fruit bud formation. (A) N.H.
- Pruning as a factor in bud formation and differentiation.--To determine the fundamental causes of fruit-bud formation and differentiation as influenced by the time and manner of pruning. Oreg.
- Relation of light to fruit bud formation. (A) N.H.
- Causes and means of control of fruit bud formation on the apple (A) N.H.

Fruits, General. (See also RURAL ECONOMICS--Cost of Production, p.401)

- Inheritance of characters in tree, vine, and bush fruits. (A) N.Y.State.
- Fruit and vegetable and nut breeding, selection, and testing. Ark.
- Improvement of hardy wild fruits of the Northwest by breeding and crossing. (A) S.Dak.
- Breeding for hardiness in fruits. (A) Minn.
- Breeding hardy fruits.--To develop by seedlings and crosses between wild and tame species, varieties better adapted to North Dakota than those now existing. N.Dak.
- Fruit breeding and variety testing. (South Haven Substation) Mich.
- Fruit improvement work. Mont.
- Pollination of fruits. (Hudson Valley investigations) N.Y.State.
- Pollination studies: A study of the pollination requirements of the various deciduous fruits, including a study of the factors causing sterilization in such fruits as the almond and cherry. (Berkeley and Davis Substations.) Calif.
- The influence of pollination on fruit yields. (Hancock, Salisbury, and College Park Substations) Md.
- Propagation of fruit. Miss.
- A physiological study of the influences of various types of paper fruit protectors on the growth of plants. Mich.



HORTICULTURE--Fruits, General. (Cont.)

Minor work with fruits. Varieties and breeding. (Talent Substation)	Oreg.
Variety test of fruits. (Grand Rapids and Duluth Substations)	Minn.
Variety tests of fruits.	N.H.
Variety trials of fruit.	Oreg.
Study of varieties of tree fruits.	Mass.
Variety tests of fruit trees. (Hermiston Substation)	Oreg.
Variety test of fruit trees.	W.Va.
Variety testing of fruit trees, small fruits and vegetables.	Idaho.
Variety studies. (Fruits)	Iowa.
Fruit variety test and phenological notes of apple, peach, plum, cherry, and grape.	Ohio.
Variety tests of commercial fruits. (Horticultural Substation)	Mont.
Variety orchard of apples and miscellaneous tree fruits.	Ky.
Variety tests of apples, crabs, plums, cherries, and plum cherries. (North Central Substation, Grand Rapids)	Minn.
Variety tests of deciduous fruits and nuts. (Davis Substation)	Calif.
Varietal trials of various garden, small fruit, and orchard crops. (Jackson Substation)	Tenn.
Variety tests of tree fruits, including description of varieties as to habits of growth and fruiting, productiveness, appearance of plant and fruit, hardiness, resistance to insects and diseases, keeping qualities, etc.	Ill.
Tree fruits: Studies of varieties and management.	Mont.
Variety tests of all tree, bush, and vine fruits that will grow in this climate.	N.Y.State.
Variety tests of fruits.--To determine the hardiest and best fruits for North Dakota conditions.	N.Dak.
Variety and hardiness tests of tree fruits. (Northwest Substation, Crookston)	Minn.



HORTICULTURE--Fruits, General. (Cont.)

- Records as to condition, vegetative, and fruiting characteristics, and hardiness for all varieties, under trial, of apples, plums, cherries, etc. Oreg.
- Survey and limited planting of fruits other than apples to determine adaptability to coastal conditions. R.I.
- A study of the adaptability of fruits for the Toyah Valley. Tex.
- Adaptability and value of different varieties of fruits for canning. Minn.
- Fertilizer tests for fruits and vegetables. (South Mississippi Substation) Miss.
- Fertilizers for fruit trees in southern Oregon, including experiments with pears, peaches, and apples on different soils. (Talent Substation) Oreg.
- A study of the effects of fertilizer limitation on fruit plants. Mass.
- The nutrition of fruits, with special reference to their hardiness. Orchard and strawberry nutrition. (A) Mo.
- Sod in orchards plus nitrates. N.Y. Cornell.
- Cooperative orchard experiment. Fertilizer and cultural test. Northeast Substation, Duluth. Minn.
- Planting distances for deciduous orchard trees. Calif.
- Cultural tests of fruits.--To determine the best way of handling the soil; the best pruning methods and the best methods of winter protection for the various fruits in North Dakota. N.Dak.
- Maintaining an orchard for the testing of fruit trees, obtained through the office of Foreign Seed and Plant Introduction, U.S. Dept. of Agriculture. Tex.
- A study involving collection and improvement of ornamentals bearing edible fruits in an effort to combine beauty and productiveness in plantings. Ill.
- Identification and study of factors determining hardiness and establishing methods to increase it. (A) Mo.
- Pruning tree fruits, grapes, and small fruits. Nebr.
- Study of root formations in cuttings. Ala.
- Bud selection for establishing frame branches of fruit trees. Pa.

HORTICULTURE--Fruits, General. (Cont.)

- A study to determine the importance of competition for food as a factor influencing the setting of fruit. (A) Ohio.
- Sterility in fruits.--To determine the underlying factors influencing the setting of fruit. (A) Minn.
- Moisture requirements of deciduous fruit trees. (Davis and Berkeley Substations) Calif.
- Moisture requirements of deciduous orchards. The behavior of fruit trees under different irrigation treatments, the losses of moisture from irrigated soils, the movement and distribution of water applied to soils in irrigation. A study of the relation of soil moisture conditions to the growth of trees and vines, and the effects of irrigation on the growth and bearing of prunes. (Davis and Mountain View Substations) Calif.
- Phenological fruit investigations.--To secure data on the blooming and ripening periods of the different orchard fruits. N.Mex.
- A study of different degrees of sunlight in fruit production and of chemical changes in internal conditions of plants so affected. (A) N.H.
- Study of biochemical factors in the production of small fruits and tree fruits. (P) N.J.
- Tree characters of fruit varieties. (A) Mass.
- Root dormancy studies in deciduous fruit trees. (Davis Substation) Calif.
- The freezing point of various fruit tissues. N.Y.Cornell.
- Fruit tree injury from abnormal food supply. Deficiency or surplus of certain plant foods. Mont.
- Toxicity in relation to fruit tree culture. Ohio.
- Time of picking fruit. Picking of Spitzenberg and Newton apples and D'Anjou pears with reference to their storage life and quality. (Hood River Substation) Oreg.
- The effect of blooming and of setting and maturing fruit in growth and other behavior of trees. (A) Calif.
- Factors that influence the abscission of flowers of young fruits. N.Y.Cornell.
- A study of the cause of June drop in fruits. (A) Del.



HORTICULTURE--Fruits, General. (Cont.)

- Spraying v. dusting tests. Fruit trees and potatoes. Oreg.
- Best stage of maturity at which to harvest fruit for drying, canning, and the preparation of jams, jellies, and other fruit products. (Berkeley Substation) Calif.
- Study of fruit harvesting and storage. Mass.
- Fruit harvesting and handling. (P) Oreg.
- Harvesting, handling, and shipping of deciduous fruits. (Davis Substation) Calif.
- Thinning of deciduous fruits in California. (University Farm) Calif.
- Fruit storage. Wash.
- Growing nursery stock.--To grow fruit trees, fruit bushes, and plants of all kinds. (Sitka Substation) Alaska.
- An investigation of the relative merits of various fruit crops as human food, stock feed, and for commercial starch production. Hawaii.
- Bush and tree fruit investigations. (West Central Substation, Morris) Minn.
- Fruit studies. (Holly Springs and South Mississippi Substation) Miss.
- The raising of fruits. (Raymond Substation) Miss.
- The home orchard.--Costs and returns. Mo.
- Home orchard tests. (Athens and Gallion Substations) Ala.
- Horticulture investigations. Experiments in the new orchard. (Northeast Substation, Duluth) Minn.
- Fruit and forest tree trials. (Everglades Substation, Belle Glade) Fla.
- The effect of possible secretions from grass roots on fruit trees. N.Y. Cornell.
- Statistics of fruit production in Porto Rico. Porto Rico.
- Modifications of factors in fruit culture. (P) R.I.



HORTICULTURE--Fruits, Tropical and Subtropical. (See also Avocados, p.176, Citrus, p.182, Coffee, p.183, Dates, p. 185, Figs, p. 185, and others.

Investigations regarding cultural requirements of tropical and semi-tropical fruit plants.--To determine the specific cultural requirements, such as soil, moisture, elevation, spacing, pruning, and spraying, of the more important tropical and semi-tropical fruit trees and plants. Hawaii.

Investigations of methods of vegetative propagation of tropical and semi-tropical fruit plants.--To determine the specific requirements of the more important subtropical and tropical fruit plants as regards vegetative propagation, bedding, grafting, layering, cuttings, etc. Hawaii.

Development of new varieties of tropical and subtropical fruits by crossing, pollination, and selection.--To develop by the various methods of plant breeding, new and improved varieties, and strains of avocado, poha, papaya, and tomato. Hawaii.

Tropical fruit investigations.--To secure a greater variety of desirable fruits for growing in Guam. Guam.

Determination of the fertilizer requirements of bananas. Hawaii.

Cacao variation in yield.--To determine extent of variation of individual cacao trees and factors affecting same. Porto Rico.

Investigation regarding edible canna (Canna edulis) and other crops as commercial sources of starch under tropical conditions. Hawaii.

Coconut fertilizer experiments.--To determine the effect of fertilizers or combinations of fertilizers on the yield and growth of coconut trees. Guam.

Coconut fertilization. The substitution of sodium in sea salt for potash.--To learn the fertilizer requirements of coconuts and to ascertain if sodium may replace potassium in coconut fertilization. Porto Rico.

Study of Jujube plants. Ariz.

Propagation of the imported mango.--To acquire, test, and disseminate better varieties of mangoes than those grown locally. Porto Rico.

Mango and avocado introduction and propagation. The introduction of varieties of known merit and their multiplication by budding and other methods on native seedlings. Virgin Islands

Improvement and study of inheritance in papaya growing. Porto Rico.

HORTICULTURE--Fruits, Tropical and Subtropical. (Cont.)

Pineapple variety and fertilizer test.--To determine the varieties of pineapples best adapted to local conditions and the most advisable kinds and rates of application of fertilizers. Guam.

Taro variety and cultural test.--To determine the varieties best adapted to lowland and upland soils: A comparison of results of irrigation v. no irrigation methods of growing these varieties. Guam.

Yam variety test.--To determine the varieties and cultural methods best adapted to local conditions. Guam.

Gooseberries.

Gooseberry breeding.-- To secure a more productive variety of gooseberries. Ill.

Gooseberry variety tests.--To find the varieties best suited to Alaska. Alaska.

Gooseberries: Variety studies, including field observations and orchard tests to gain information relative to their behavior, commercial possibilities, and adaptation for the home orchard or garden. Va.

Gooseberry experiments with reference to mildew-resisting powers. Wis.

Effects of pruning on growth with apples, cherries, grapes, and gooseberries. N.Y.Cornell.

Grapes.

Study of the transmission of characters in Vitis rotundifolia hybrids. (A) N.C.

Inheritance of characters in tree, vine, and bush fruits. (A) N.Y.State.

The transmissibility and degree of permanence of vegetative varieties of Vitis vinifera. (Davis Substation) Calif.

The breeding of early colored grapes. Md.

Breeding Vitis rotundifolia. Ga.

Rotundifolia grapes.--Hybridization with other species to determine the species with which Vitis rotundifolia will hybridize.--To find methods for overcoming antipathy where it occurs and to establish a scale of hybridization of Vitis rotundifolia with other species. (A) N.C.



HORTICULTURE--Grapes. (Cont.)

Variety tests of grapes.	Fla.
Variety tests of grapes.	Miss.
Variety tests with grapes.	S.C.
Variety tests of grapes and strawberries.	Md.
Grape investigations: American and hybrid varieties.	Ky.
Grape varieties on hardy stocks.	N.Y.State.
Variety tests of all tree, bush, and vine fruits that will grow in this climate.	N.Y.State.
Grapes: Variety studies, including field observations and orchard tests to gain information relative to their behavior, commercial possibilities, and adaptation for the home orchard or garden.	Va.
Grapes: Fertilizer tests.	Miss.
Fertilizers for grapes.	N.Y.State.
Grape fertilization.--To determine the proper fertilizer applications for grapes in southwestern Michigan.	Mich.
Grape experiments, including fertilizer experiments, variety tests, and pruning.	W.Va.
Pruning and plant food studies with grapes.	N.J.
Grape pruning.	Mich.
Grapes: Pruning.	Miss.
Pruning experiments with grapes.	N.Y.State.
Methods of pruning bunch grapes.	S.C.
Pruning tree fruits, grapes, and small fruits.	Nebr.
Influence on the vigor of the vine of the removal of growth in the dormant season.	Calif.
The pruning of resistant mother vines. (Davis Substation)	Calif.



HORTICULTURE--Grapes. (Cont.)

- Grapes.--(a) Effect of different methods of pruning upon vine growth, yield, color, and size of berries, (b) variety studies, (c) irrigation studies. Ariz.
- Effects of pruning on growth, with apples, cherries, grapes, and gooseberries. N.Y. Cornell.
- Experiments in grape training and pruning. (Beltsville, Salisbury, and College Park Substations) Md.
- Grape pruning and training.--To determine the best method of training native varieties of grapes and the degree of severity to use in pruning under Illinois conditions. Ill.
- The effect of (a) density, and (b) arrangement of planting, upon the vigor and bearing of the vine. Calif.
- Effects of fruiting on growth and yield of the apple, peach, and grape. (A) Mo.
- Factors affecting the ripening of the Concord grape. (A) Okla.
- Storage of grape varieties.--To learn the keeping qualities of grapes in cold storage. Ill.
- A study of factors involved in the production, storing, and shipping of grapes. Ark.
- An experimental study of the storage period of selected lots of table grapes. (Berkeley Substation) Calif.
- Effect of soil moisture on the winterkilling of grape vines. (P) Ariz.
- The effect of various preliminary treatments and the time of planting of vine cuttings on the number and vigor of rootings. Calif.
- Rotundifolia grapes.--A study of quality characters. Factors controlling the various qualities of Vitis rotundifolia, such as clinging character of the berries, thickness of skin, transpiration, flavor, aroma and disease resistance, with a view of finding methods of improvement. (A) N.C.
- Influence of the number of fruit buds on the quality of the vine crop and the prevalence of "water berries" and black measles. (Davis Substation) Calif.
- Types of flowers in grapes. N.Y. State.
- Pigments of the grape. N.Y. State.
- Muscadine grape culture. (Fruit and Truck Substation, Hammond) La.

HORTICULTURE--Grapes. (Cont.)

Growing European grapes.--To determine the feasibility and practicality of growing European grapes out of doors in Illinois. Ill.

Studies of Vitis vinifera grapes. Tex.

Duty of water on grapes.--To determine the best amounts of water to use and the best time of application. N.Mex.

An investigation of the causes of the drying of vines in the Imperial Valley. Calif.

Planting and maintenance of an instruction vineyard at Davis. (Davis Substation) Calif.

Vineyard investigations. Iowa.

Kale.

Varietal trials of various market garden crops such as Irish potatoes, sweet potatoes, kale, and strawberries. Tenn.

Landscape Gardening.

Landscape architecture: Its relation and application to the rural schools of New York State. N.Y.Cornell.

A study of the ferns of New York State in their relation to landscape art. N.Y.Cornell.

New plant materials for landscape use in Iowa.--To collect reliable data on plant material regarding their landscape value under Iowa conditions. To test on the station grounds new and little known plant materials. Cooperating with Iowa nurseries. Iowa.

Lettuce.

A study of inheritance in lettuce. (P) Pa.

Lettuce breeding.--(a) Strain selection for heat and slime resistance, (b) crossing of Los Angeles market variety with resistant varieties to develop a resistant variety of high market value. Ariz.

Truck and root crops: Head lettuce varietal trials. (Union Substation) Oreg.

A study of varieties and cultural methods for head lettuce. Idaho.

Fertilizer tests with lettuce. S.C.



HORTICULTURE--Lettuce. (Cont.)

- Lettuce fertilizer experiments.--(a) Effect of fertilizers, alone and in combination, on maturity, size, and compactness of head, (b) alkali tolerance of lettuce and effect of fertilizers on it, (c) time of planting effects. Ariz.
- Fertilizer and nutrient needs of iceberg types of lettuce in greenhouse culture with stable manure substitutes. R.I.
- Fertilizer experiments with lettuce on muck soil. (Wayne Co.) N.Y. Cornell.
- Autumn-plowed mammoth clover, cowhorn turnips, soy beans, and spring-plowed mammoth clover, rye, timothy, for early lettuce and beets. R.I.
- Red clover plowed under in autumn and spring as a green manure crop for lettuce and beets. R.I.
- The rôle of soil texture in head lettuce culture under glass. Pa.
- Head lettuce in high altitudes. Colo.
- The germination of lettuce seed. Minn.
- Studies of the factors influencing heading of greenhouse lettuce. (Market Garden Field Substation) Mass.
- Truck crop production: (a) Spinach, (b) head lettuce, (c) celery. Utah.
- Lettuce production in western North Carolina.--A study of lettuce production with the view of encouraging its production in the western part of the State. N.C.

Loganberries.

- Small fruit experiment: (a) To collect phenological data on a number of different varieties of strawberries, blackberries, raspberries, currants, and loganberries. (b) To ascertain, if possible, the best varieties of these different fruits for commercial and home plantations. N.Mex.

Melons.

- A study of pollination and fertilization in cucurbits. Iowa.
- A study of the factors affecting fruiting habits of cucurbits.--To determine how conditions within the melon may be altered so that a higher ratio of pistillate to staminate blossoms may be produced, and that the pistillate blossoms may be produced earlier in the plant's life; also, conditions favorable for fruit setting. (Davis Substation) Calif.
- Cucurbits for canning. Iowa.



HORTICULTURE--Mulberries.

Study of species of mulberries.

Ariz.

Muskmelons.

Breeding muskmelons.--To obtain varieties of muskmelons adapted to Porto Rico conditions and of good quality and yield. Porto Rico.

Muskmelon variety tests and breeding at the Graham Substation. Mich.

Cultural studies with muskmelons. N.J.

Muskmelons. N.Y.State.

Nuts, General.

Nut, fruit, and vegetable breeding, selection, and testing. Ark.

Variety tests of deciduous fruits and nuts. (Davis Substation) Calif.

Studies in nut culture. N.Y.Cornell.

Nut culture in Minnesota, including selected varieties of black walnuts, shell bark hickory and the "heart nut". (Juglans seiboldiana Var. cordiformis) (Crookston, Grand Rapids, Morris, Duluth and Waseca Substations) Minn.

Nut culture in Minnesota (cooperative). (Southeast Substation, Waseca) Minn.

Nut trees as a money crop in Michigan. Mich.

Nut tree planting. Iowa.

Olives.

The principles and practices of olive pruning. (Berkeley and Davis Substations) Calif.

Pruning olives with a view to favoring annual bearing and better fruit. (Berkeley Substation) Calif.

Olives: A study of sterility, cultural practices, such as pruning, irrigation, etc. Ariz.

Increasing the size of olives. A study of the factors influencing the size of olive fruits. (Kings County) Calif.

Preparation of collection of olive trees at Davis, Kearney, and Imperial and of specimens at Berkeley. (Davis and Berkeley Substations) Calif.

HORTICULTURE--Onions.

- Spanish onions.--To study the different strains. N.Mex.
- Davis County Experiment Farm.--(a) Onion variety test, (b) comparison of sweet Spanish types, (c) green bean variety test, (d) irrigation studies of canning peas, (e) cost of producing strawberries, (f) miscellaneous studies. Utah.
- Fertilizer needs of onions in rotation. R.I.
- Fertilizer experiments with onions on muck soil. (Wayne Co.) N.Y.Cornell.
- Study of the growth of onions as influenced by differential liming. Mass.
- Investigation of the effect of varying the ratio, amount and concentration of plant nutrients applied in onion growing. Mass.
- Study of effect of fractional application of fertilizer materials on growth, maturity, and quality of onions. Mass.
- Investigation of the rôle of organic matter in the production of onions. Part I, Pot work with soils deficient in organic matter. Mass.
- Investigation of the rôle of organic matter in the production of onions. Part II, cover crops. Mass.
- Sweet Spanish onions.--Effect of time of planting and spacing on size and yield; comparison of transplanting and growing direct in the field; efficiency of methods of curing; types of containers in storage and curing, and development of a curing shed. Ariz.
- The examination of the influence of source of seed in onion production. Mass.
- Influence of onions on following crops. R.I.
- Methods of growing onions. Mont.

Orchard Management.

- Orchard management. Colo.
- Orchard management investigations. Iowa.
- Orchard management investigations. Studies of tree growth and fruit bud formation as affected by commercial fertilizers, green manures, cover crops, and methods of tillage. Spraying studies. Kans.
- Cooperative orchard management. Fertilizer and cultural test. (Duluth Substation). Minn.



HORTICULTURE--Orchard Management. (Cont.)

Orchard soil management investigations.--To study the effects and particularly the factors responsible for the effect of different systems of soil management on apple trees. (A)	Ind.
Tests of orchard fertilizers.	Idaho.
Orchard fertilizer investigations.	Iowa:
Orchard fertilization.	Mass.
Studies in orchard fertility. (Davis Substation)	Calif.
Orchard nutrition, with special reference to the relations between plant food, environment, nutritive conditions within the plant and production. (A)	Mo.
Value of commercial fertilizers in orchards.	Mont.
Tests of different amounts of nitrate of soda (in orchards).	Mass:
Tests of fertilizers in a sod mulch orchard.	Mass.
Tests of fertilizers for apples, pears, strawberries, potatoes, and clover on different soils of Hood River Valley. (Hood River Substation)	Oreg.
Local orchard experiments. Methods of culture. (Salem, Winchester, Crozet, Amherst, Appomatox, and Berryville Substations)	Va.
Orchard cultural tests. (Horticultural Substation)	Mont.
Cultural tests of fruits.--To determine the best way of handling the soil; the best pruning methods and the best methods of winter protection for the various fruits in North Dakota.	N.Dak.
Cultural experiments with orchard fruits.--To determine the effect of various cultural and fertilizer treatments on young orchards. (Graham Substation)	Mich.
Local orchard experiments. A study of cover crops. (Salem, Winchester, Crozet, Amherst, Appomattox, and Berryville Substations)	Va.
Cover crops in orchards.	Mich.
Cover crops for orchards. (Hudson Valley investigations.)	N.Y.State.
The effects of growing cultivated crops and cover crops in a growing orchard. (Irrigation Substation)	Wash.



HORTICULTURE--Orchard Management. (Cont.)

- Orchard cover crops.--To determine the effects of different cover crops on the apple tree and to study certain changes induced in the soil by the crops as interpreting their effect on the tree. Ind.
- Legume cover crops and available nitrogen in Hood River Valley orchard soils.--To find out whether legume cover crops provide sufficient available nitrogen for growth and production of orchards. Oreg.
- Comparison of clover sod and grass in sol mulch orchard. Mass.
- Comparison of cultivation and sod mulch in a bearing orchard. Mass.
- Shade crop studies: The influence on tree growth of different methods of handling alfalfa in orchards. (Hood River Substation) Oreg.
- An investigation of the principles, practices, and results of protecting orchards from losses occasioned by frosts and freezes in California. Calif.
- A study of orchard heaters. (Davis Substation) Calif.
- Smudging experiment.--To test a few of the different kinds of smudge pots, and to ascertain whether or not smudging is practicable. N.Mex.
- Orchard economics. Mich.

Ornamentals, Hedge Plants.

- Propagation of ornamental plants. N.J.
- Shade trees. Ohio.
- Tests of ornamental trees and shrubs. Mont.
- Tests of trees and ornamentals. (Horticultural Substation) Mont.
- Trees and shrubs for ornamental planting. Ariz.
- Testing of introduced shrubs and ornamentals and methods of their propagation. Fla.
- Variety tests of trees and shrubs. Ky.
- Variety trials of shrubs.--To determine the best shrubs for North Dakota and how they can best be used. N.Dak.
- Variety and hardiness tests of ornamental shrubs and vines. (Northwest Substation, Crookston) Minn.

HORTICULTURE--Ornamentals, Hedge Plants. (Cont.)

- Variety tests of ornamental trees. (Hermiston Substation) Oreg.
- Variety trials of shade trees.--To learn which trees are most hardy in North Dakota and by studying them to learn where they can best be used. N.Dak.
- Variety tests of annual, biennial, and perennial flowering plants. (Northwest Substation, Crookston) Minn.
- Ornamental perennial tests.--To study their behavior, hardiness and adaptation to Alaska. (Sitka Substation) Alaska.
- Hardy and half-hardy herbaceous perennials. Ky.
- Ornamental annuals in variety.--To beautify station and test their adaptation to Alaska. (Sitka Substation) Alaska.
- Study of ornamental varieties and their uses, including a peony trial garden, and iris trial plot, and dahlia tests. Minn.
- To determine the adaptability of various ornamental trees to higher elevations of eastern Idaho for the improvement of the homestead. (Aberdeen Substation) Idaho.
- Tests of trees and ornamental shrubs for the high plains of southwestern Kansas. (Tribune Substation) Kans.
- The testing of trees and ornamentals for western Minnesota conditions. (West Central Substation, Morris) Minn.
- The development of hardy ornamentals and flowers for the Northwest. S.Dak.
- Horticultural investigations. The planting of ornamental trees and shrubs for the homestead. (High Altitude Substation) Idaho.
- Ornamental shrubbery tests.--To study their hardiness. (Sitka Substation) Alaska.
- Growth and hardiness tests of ornamental and windbreak trees. (Northwest Substation, Crookston) Minn.
- Study of tamarisks, particularly Tamarix articulata. Ariz.
- The blooming and ripening of wild and cultivated ornamental plants. N.J.

Parsnips.

- Seed production studies with carrots and parsnips. (Aberdeen Substation) Idaho.



HORTICULTURE--Peaches.

Breeding peaches. The genetic composition of peaches. (A)	Mass.
Peach breeding for hardy sorts.	Mo.
Peach breeding: The growing of peach trees from controlled pollinations to determine the behavior in transmission of specific parental characters. (A)	Ill.
Peach breeding experiments.--To improve the present list of commercial varieties and to study the inheritance of unit characters in the peach.	N.J.
Peach breeding work.--To produce new varieties; and earlier variety than the Mayflower; and earlier yellow fleshed variety than Arp Beauty; earlier free-stone varieties of both white and yellow fleshed peaches; varieties hardier in bud. (Willard and Southern Pine's Substations)	N.C.
Influence of bud inheritance on yield of peaches.	Conn.State.
Peaches: Variety tests.	Ala.
Peaches: Variety tests.	Miss.
Peaches: Variety studies including field observations and orchard tests to gain information relative to their behavior, commercial possibilities, and adaptation for the home orchard or garden.	Va.
Variety tests of apples, peaches, pears, plums, and cherries.	Md.
Fertilizer and variety tests with peaches.	Ga.
Peach fertilization experiments.	N.C.
The fertilization of peach orchards. (Salisbury, Berlin, Mt. Airy, and College Park Substations)	Md.
Use of fertilizers on the peach orchard.	N.H.
Fertilizer test on young and bearing peach trees.	S.C.
Local orchard experiments. Response of peach trees to fertilizers under different soil conditions. (Salem, Winchester, Crozet, Amherst, Appomatox, and Berryville Substations)	Va.
Fertilizers for peaches and apples.	W.Va.
Plant food studies with peaches.	N.J.
Functions of nitrogen, potash, and phosphoric acid in the production of the peach. (A)	Del.



HORTICULTURE--Peaches. (Cont.)

- Relative effect of various carriers of nitrogen upon peach production. Del.
- Nitrate of soda test on bearing peach trees. S.C.
- Peach fertilization.--To determine the effect of applications of nitrate of soda on peaches at different growth stages on fruit production at the Graham Branch Station. Mich.
- The effect of fertilizers, especially nitrate of soda, on the growth, yield, longevity and "yellows" of peaches. Conn. State.
- A study of the nutrition of peach trees and the factors which influence crop production. Ark.
- Peach pruning experiments. (Salisbury, Mt. Airy, and College Park Substations) Md.
- Pruning experiments with peaches. Miss.
- Peach pruning experiments.--To determine the effects of heavy, medium, and light pruning on growth and yield of peach trees. N.C.
- Peach pruning experiments. A study of the various methods of pruning peach trees to determine the effect of various modifications of pruning upon the amount, form, and character of the wood growth, the effect of pruning during the dormant season, the effect of pruning upon fruit production, and the relation between various methods of pruning and the essential details of orchard management. N.J.
- The effect of bud and spur defoliation on fruit bud formation, with the peach. Md.
- A comparison of spraying and dusting on apples and peaches, especially to try new dusts. Conn. State.
- Peach thinning.--To determine the effect upon size, yield, and color. N.C.
- Root stocks for peaches. N.J.
- To determine the cause of premature development of peach buds and how to prevent premature development. (A) Okla.
- Factors influencing the hardiness of the peach. (A) Md.
- A study of the hardiness of peach varieties in western North Carolina. (Swannanoa Substation) N.C.
- Peaches: Size studies. Miss.

HORTICULTURE--Peaches. (Cont.)

A detailed study of the growth of the fruits of the peach from flower stage to maturity. N.J.

The rejuvenation of peach orchards. (College Park and Smithsburg Substations) Md.

Economic study of the peach industry. N.J.

Survey of the peach industry. (P) Ark.

Peach production. Tex.

The longevity and adaptability of the Indian cling peach.-- A comparison of the longevity of the modern commercial varieties of peach when budded on to the Indian Cling stock v. the same variety on stock from the mixed seed obtained on the market: to test the Indian Cling seedlings as to heredity or stability of character, and as direct fruit producers. Tex.

Effects of fruiting on growth and yield of the apple, peach, and grape. (A) Mo.

Pears.

Pear breeding. (Talent Substation) Oreg.

Pear breeding investigations. D'Anjou pear pollination. (Corvallis Orchard Co.) Oreg.

Pollination of pears, (Comice and D'Anjou). (Talent Substation) Oreg.

Testing pear seedlings. Oreg.

The breeding of blight-resistant pears. Md.

Blight-resistant pears.--To propagate blight-resistant pear stocks on which to graft standard varieties and to develop resistant variety or varieties of suitable market qualities. Ill.

Breeding pears for resistance to blight. Ga.

Pear variety test. Miss.

Testing new varieties of pears. (Talent Substation) Oreg.

Variety tests of apples, peaches, pears, plums, and cherries. Md.

Pears: Variety tests with special reference to susceptibility to blight. Ala.



HORTICULTURE--Pears. (Cont.)

Variety, propagation, and planting tests of pear, avocado, Japanese persimmon, fig, and other fruits. Fla.

Horticultural investigations: The introduction and testing of apples, pears, and plums, and some small fruits, to determine their winter hardiness and adaptability to high altitudes. (High Altitude Substation) Idaho.

Test of fertilizers for pears. Mass.

Comparison of cultivation and heavy mulching for apples and pears. Mass.

Pear spraying investigations to determine a safe spray application for D'Anjou pears. (Hood River Substation) Oreg.

A study of the graft union from the standpoint of the alleged difficulty of top-working the Keiffer pear to other varieties of pear. N.Y.Cornell.

Relationship of scion to stock in top-working pears. R. I.

Test orchard of pear stocks. (Talent Substation) Oreg.

Studies in blight-resistant root stocks for pears. N.Y.Cornell.

To determine the best methods of propagating blight-resistant pear stock from root cuttings. (Talent Substation) Oreg.

Horticultural explorations (northern China), for hardy pears resistant to blight. S.Dak.

Tests with strawberries and potatoes and blight-resistant pears. (Hood River Substation) Oreg.

Blight resistance in pears. Relative resistance or susceptibility to pear blight of all known species of *Pyrus*. (Talent Substation) Oreg.

Time of picking in relation to time of ripening. Oreg.

Time of picking in relation to tonnage. Oreg.

Control of loss of weight and volume. Oreg.

Development of a pressure test for maturity of commercial varieties of pears. Oreg.

Effect of temperature and turgidity on pressure test for maturity of pears. Oreg.



HORTICULTURE--Pears. (Cont.)

- Factors influencing the bearing habit of the D'Anjou pear, including girdling, bridge grafting, spur pruning, artificial beading of branches, heading v. thinning out, etc. (Hood River Substation) Oreg.
- An investigation of secondary fruiting of pears. (Davis Substation) Calif.
- Relationship of sexual characters to sterility in the pear. (A) Vt.

Peas.

- Breeding of field and canning peas: (a) Field and canning peas, (b) peas for northern Wisconsin. Wis.
- Garden and field pea investigations. Breeding and improvement. Idaho.
- Garden and field pea and bean investigations. Variety tests. Idaho.
- Variety test of garden peas, Yuma Station: (a) Planting of leading varieties to test adaptability, (b) planting dates. Ariz.
- Garden and field pea investigations.--To determine the varieties best adapted to irrigated and dry lands. (High Altitude Substation) Idaho.
- Fertilizers for garden peas. Md.
- Garden and field pea investigations. Cultural experiments. Idaho.
- Rate of seeding garden peas. Md.
- Garden and field pea experiment to determine time of planting and best varieties to grow. N. Mex.
- Inoculation experiments with garden peas. Md.
- Factors influencing the yield and quality of canning peas. (P) Md.
- Experiments with garden peas for canning and market. (Ridgely Substation) Md.
- Davis County Experiment Farm.--(a) Onion variety test, (b) comparison of sweet Spanish types, (c) green bean variety test, (d) irrigation studies of canning peas, (e) cost of producing strawberries, (f) miscellaneous studies. Utah.
- Best crop to precede garden peas. Md.
- A study of the influence of temperature on the growth of peas. Md.

HORTICULTURE--Peas. (Cont.)

- Influence of climatic factors and methods of handling upon carbohydrate and protein metabolism in the garden pea.--  
To secure information on the factors affecting yield and shipping quality in connection with table quality.  
(Davis Substation) Calif.
- Influence of peas on late cabbage. R.I.
- Garden and field pea investigations. Classification studies. Idaho.
- Peas. N.Y.State.

Pecans.

- Pecan breeding.--To produce improved varieties and varieties especially suited to North Carolina. (Willard Substation) N.C.
- Pecans: Variety tests. Ala.
- Pecans: Variety studies. Miss.
- Compilation of available information upon the varieties of pecans best suited to different localities and soil types of Florida, and collecting information as to the best proven methods of fertilizing, propagating, and growing pecans. Fla.
- Variety testing of pecans.--To determine the most desirable varieties for North Carolina. (Willard, Kingsboro, Statesville, and Swannanoa Substations) N.C.
- Pecan investigation.--To test the better varieties of pecans to see if some cannot be found which will prove hardy in this part of Oklahoma. Okla.
- Pecans.--Variety studies.--Planting methods and practices. Ariz.
- Variety and stock tests of pecan and walnut trees. Fla.
- Sterility and variety tests with pecans. Ga.
- Cooperative fertilizer tests in pecan orchards, with growers. Fla.
- Fertilizer and cover crop test with pecans. (Selma Substation) Ala.
- Cultural practices with pecans.--To determine the most desirable cultural practices in handling pecan orchards. (Willard and Kingsboro Substations) N.C.

HORTICULTURE--Pecans. (Cont.)

- Pecan, English walnut, and almond experiment (a) to ascertain whether New Mexico climatic and soil conditions are suitable for the growing of these nut trees; (b) to study the different methods of preventing winter injury to the trees; and (c) an investigation on originating, if possible, a late blooming almond. N.Mex.
- Pecans: Comparison of nuts grown here and in other sections of the State. Miss.
- Study of fruit bud differentiation of pecans and internal changes associated with the process. Ala.
- Individual tree performance records of pecans. (Willard and Kingsboro Substations) N.C.
- Cracking tests with pecans.--To determine the value of different varieties as regards cracking quality. N.C.
- Pecan production. Tex.
- The cause of variations in the size and vigor of seedlings of pecans while in the nursery row. Ga.
- Development of the pecan nut. (A) Ga.
- Stocks for pecan grafting. (Hammond Substation) La.
- Cooperative cover crops tests in pecan orchards. Fla.
- Pecan soils in Texas. Tex.
- Pecans. (Hammond Substation) La.

Peppers.

- Fertilizer and cultural tests with peppers. Ga.
- Experiments with sweet potatoes, eggplants, peppers, and cantaloupes. (Ridgely Substation) Md.

Persimmons.

- Persimmon variety test. Miss.
- Variety, propagation, and planting tests of pear, avocado, Japanese persimmon, fig, and other fruits. Fla.



HORTICULTURE--Pineapples.

The limiting factors in fertilizing affecting the growth and production of the pineapple plant.--To determine the causes for differences in the behavior of the plant with different nitrogenous fertilizers. (San Juan Substation) Porto Rico.

A study of the relation of certain physical properties of Hawaiian soils to pineapple and banana fertility. Hawaii.

The factors influencing time of blooming of the pineapple plant. To determine the cause of blooming at certain times, regardless of the size or age of the plant which, when premature, results in undersized fruit. (San Juan Substation) Porto Rico.

Miscellaneous physiological investigations in connection with the pineapple plant.--To gain a clearer understanding of the plant in order to be able to answer the many questions that are being asked. (San Juan Substation) Porto Rico.

Pistachios.

Study of pistach trees (Pistacia vera) Ariz.

Plums.

Pollination: To determine how and to what extent standard varieties of apples and plums are self barren and also to determine which of the standard varieties may best be used as pollinizers for self-barren and partially self-barren varieties. (South Haven Substation) Mich.

Variety test of European, native, and Japanese plums and sweet and sour cherries.--To test a number of the newer varieties of these different fruits. N. Mex.

Variety tests of apples, peaches, pears, plums, and cherries. Md.

Varieties and seedlings of plums best adapted to Wisconsin conditions. Wis.

Horticultural investigations: The introduction and testing of apples, pears, and plums, and some small fruits, to determine their winter hardiness and adaptability to high altitudes. (High Altitude Substation) Idaho.

A test of stocks for plums. N.Y. State.

HORTICULTURE--Prunes.

Prune breeding investigations. Testing seedlings. Oreg.

Standardization of dried prunes. (P) Oreg.

Pruning. (See also Specific Fruits)

Pruning experiments. N.Y. State.

Pruning experiments. (Hood River Substation) Oreg.

Pruning tests with various fruits. Propagation of orchards in place. (South Mississippi Substation, Poplarville) Miss.

Testing methods of pruning. Mass.

Pruning studies. The effect of different methods of pruning upon deciduous fruit. Ariz.

Pruning studies. A study of wood growth and total fruit crop of the various deciduous fruit trees grown in California, when subjected to different pruning treatments. (Davis Substation) Calif.

Pruning experiment.--To study the effect of different times and styles of pruning. N.Mex.

To study the effects of pruning upon the tree and some of the causes contributing thereto. Ind.

A physiological study of the effect of pruning upon the growth and productiveness of citrus trees and other horticultural plants grown under irrigation in arid regions in southern California. (Riverside Substation) Calif.

Physiological effect of pruning fruit trees, including peaches, pears, plums, cherries, and quinces. W.Va.

The effect of the pruning necessary to secure various forms on the leaf surface, growth, and fruiting habit of apples, pears, plums quinces, and cherries. N.Y. Cornell.

Pruning as a factor in bud formation and differentiation.--To determine the fundamental causes of fruit-bud formation and differentiations as influenced by the time and manner of pruning. (A) Oreg.

Summer v. winter pruning experiments. Idaho.

Healing of pruning wounds. Mont.



HORTICULTURE--Raspberries.

Genetic studies with bramble fruits, especially raspberries.

Determination of factors limiting culture of Rubus species in the South Atlantic States. Hybridization among species.

(A)

N.C.

Raspberry breeding.

Ill.

Raspberry variety tests.--To test them out to find the best sorts. (Sitka Substation)

Alaska.

Raspberries: Variety studies, including field observations and orchard tests, to gain information relative to their behavior, commercial possibilities, and adaptation for the home orchard or garden.

Va.

(a) To collect phenological data on a number of different varieties of strawberries, blackberries, raspberries, currants, and loganberries. (b) To ascertain, if possible, the best varieties of these different fruits for commercial and home plantations.

N.Mex.

Comparison of Cuthbert raspberries from the Thumb district of Michigan with Cuthberts from southwestern Michigan. (South Haven Substation)

Mich.

Raspberries--cultural and spraying experiments.

Mich.

Raspberry and dewberry fertilization.--To determine the effect of nitrogen, phosphorus, and potash, when used singly and in combination, upon the yield and growth of the berries.

Mich.

Disease resistance of raspberries under coastal conditions. (P)

R.I.

Raspberries.

Miss.

Rhubarb.

The development of an improved variety of rhubarb.

Pa.

Chemical fertilizers for rhubarb, with special reference to sulphate of ammonia. (Chillum and College Park Substations)

Md.

Rhubarb forcing: To determine the best age of roots for forcing and the effect of watering and of temperature on yield and color of forced crops.

Ill.



HORTICULTURE--Small Fruits, General.

Genetics studies with bramble fruits, especially raspberries.

Determination of factors limiting culture of *Rubus* species  
in the South Atlantic States. (A) N.C.

Inheritance of characters in tree, vine, and bush fruits. (A) N.Y. State.

Breeding of horticultural plants, including tomatoes, small  
fruits, and celery. Utah.

Study of biochemical factors in the production of small fruits  
and tree fruits. (P) N.J.

Variety tests of bush fruits. Md.

Small fruit varietal tests.--The behavior and performance of small  
fruit and grape varieties, with special reference to botanical  
characteristics, insect and disease resistance, ability to  
withstand unfavorable climatic conditions, blooming and ripening  
dates and average yields. Ill.

Variety testing of fruit trees, small fruits, and vegetables. Idaho.

Varietal trials of various garden, small fruit, and orchard  
crops. (Jackson Substation) Tenn.

Varietal studies of small fruits. Del.

Small fruit variety testing. (South Haven Substation) Mich.

Variety testing of small fruits from fruit breeding station.  
(Northeast Substation, Duluth) Minn.

Variety tests of all tree, bush, and vine fruits that will grow  
in this climate. N.Y. State.

Variety tests of berries--*Rubus* spp. Fla.

Bush fruits.--To test some of the most popular varieties of bush  
fruits and strawberries. Okla.

Variety test of raspberries, blackberries, dewberries, goose-  
berries, currants, high bush cranberries, blueberries, straw-  
berries, and grapes. (North Central Substation, Grand Rapids) Minn.

Commercial varieties of small fruits adapted to coastal conditions. R.I.  
(P)

Horticultural investigations: The introduction and testing of  
apples, pears, and plums, and some small fruits, to determine  
their winter hardiness and adaptability to high altitudes.  
(High Altitude Substation) Idaho.

HORTICULTURE--Small Fruits, General. (Cont.)

Variety and hardiness tests of small fruits. (Northwest Substation, Crookston) Minn.

Variety and cultural tests with small fruits. (Horticultural Substation) Mont.

Bush fruit experiments. Fertilizer and variety tests. W.Va.

Fertilizer tests on small fruits.--To study the effect of commercial fertilizers in the growing of small fruits and determine the fertilizer needs of raspberries, blackberries, currants, gooseberries, and grapes. Ill.

Cultural methods and adaptation of small fruits. Ga.

A study of the relation of winter injury to brambles to differential fertilization with potash salts. (A) Mass.

Pruning tree fruits, grapes, and small fruits. Nebr.

Irrigation of small fruits and vegetables. Mich.

Vegetable and small fruit studies for the Delta. (Delta Substation) Miss.

Experiments with small fruits. Mont.

Bush and tree fruit investigations. (West Central Substation, Morris) Minn.

Spinach.

The development of blight-resistant strains of spinach. Md.

Variety tests of fall spinach. N.Y. State.

Commercial fertilizers for fall spinach. N.Y. State.

Spinach culture with stable manure substitutes. R.I.

The selection of a strain or strains of spinach that will meet the market and canners' demands. (P) Md.

Truck crop production: (a) Spinach, (b) head lettuce, (c) celery. Utah.

Physiological study of flowering in spinach. N.Y. Cornell.



HORTICULTURE--Spraying, Dusting, and Fumigating, General. (See also  
CHEMISTRY--Chemical Studies, Various, p.1; HORTICULTURE--specific fruits;  
PLANT PATHOLOGY--Fungicides, p. 253 and diseases of specific plants; and  
ECONOMIC ENTOMOLOGY--Insecticides and fumigants, p. 287)

Spraying investigations.	Ark.
An investigation of sprays and spraying materials.	Mo.
The testing of new spray materials.	Idaho.
Studies of spray materials and dusts.	Del.
Spraying fruits for insect and fungus diseases.--To determine the benefit to be derived from the addition of a substance to increase the spreading qualities of lime sulphur.	Mo.
Spraying--fruit disease control.	Ohio.
Spraying investigations upon tree fruits.	N.J.
Improvement of methods of spraying vegetable crops.	N.Y. State.
Spraying, with special reference to meeting the local requirements to control insect and fungus diseases. (Salem, Winchester, Crozet, Amherst, Appomattox, and Berryville Substations)	Va.
Some phases of dusting for control of fruit diseases and insects.	N.Y. Cornell
Dusting and spraying for the control of diseases in fruit nursery stock.	N.Y. Cornell
Dusting and spraying project.	Mich.
Duration of protective effect of dusts and sprays.	N.Y. State.
Physical and chemical properties of fine dusts used as carriers or diluents.	N.Y. State.
The chemistry of insecticides and fungicides. Reaction of dusts or sprays in storage.	N.Y. State.
A study of the chemical changes in standard spray mixtures.	Conn. State.
A study of the physical properties of insecticides and fungicides. (A)	Oreg.
Testing of the value of various spreaders for sprays.	Idaho.
Spreader: Tests of value of calcium caseinate under southwestern Idaho conditions.	Idaho.



HORTICULTURE--Spraying, Dusting, and Fumigating, General. (Cont.)

- Investigation of stickers, spreaders, and diluents for spraying and dusting, particularly the latter.--To find satisfactory dust materials that will take the place of liquid mixtures; to find a spreader for commercial lime-sulphur and a sticker for self-boiled. N.J.
- Adherence of sprays and dusts to foliage. N.Y.State.
- Scab spraying investigations. Testing of proprietary sprays. (Hood River Substation) Oreg.
- Scab spraying investigations. Studies of spraying practices as a basis for spraying program. (Hood River Substation) Oreg.
- Scab spraying investigations. Determining strength of dilutions necessary to effect control. (Hood River Substation) Oreg.
- An investigation of combination sprays for deciduous fruit trees. Mo. (P)
- How to prepare from leaf tobacco or waste a dependable infusion for spraying. Ky.
- Factors influencing the selection of oil sprays. (A) Wash.
- An investigation of the value and possible limits of the use of oils in the dormant and delayed dormant sprays. Pa.
- A method for the determination of the persistence of sulphur spray and dust coatings. N.Y.Cornell.
- Spray injuries on fruits. Md.
- Factors influencing burning of foliage by Paris green. Mont.
- A study of fumigation processes, with special reference to the chemical problems involved. (Citrus Substation, Riverside) Calif.
- An investigation of the stationary spray plant. (Davis Substation)Calif.

Squash

- Pure line breeding with squash and strawberries. Study of influence of continued self-pollination on quality, quantity, seed production, vigor, and vitality of progeny; maintenance of pure lines without inter-crossing. Vt.
- Squash fertilizer experiments, especially with acid phosphate. N.H.
- Fertilizer needs of squash in rotation. R.I.
- Influence of squash on following crops. R.I.

HORTICULTURE--Stock and Scion. (See also specific fruits.)

Root stock investigations. An endeavor to find introduced forms or native species that are better adapted to California conditions. (Davis Substation) Calif.

Nursery stock investigations in relation to bud selection, root selection, and the reciprocal relation of stock and scion. (A) Me.

Stock and scion investigations.--To study the interrelation of stock and scion in both its commercial and scientific aspects, Ind.

Scion trials. A study of the relationship of the parentage of scions to subsequent fruitage; of the question whether scions from high bearing, low bearing, and constant bearing trees will perpetuate these characteristics or whether they will be modified by the characteristics of the tree into which they are grafted. Vt.

Fruit stock investigations. Nebr.

Orchard stock investigations (hardiness). Iowa.

Improvement of fruit stocks. (P) Pa.

Strawberries.

Strawberry breeding.--To create varieties that shall be suited to the Alaska climate; particularly in point of hardiness. (Sitka Substation) Alaska.

Strawberry breeding investigations. Testing seedlings. Oreg.

Pure line breeding with squash and strawberries. Study of influence of continued self-pollination on quality, quantity, seed production, vigor, and vitality of progeny; maintenance of pure lines without inter-crossing. Vt.

Fruit breeding, especially apples and strawberries. Nebr.

Strawberry variety tests. Wis.

Variety tests of strawberries. (Fruit and Truck Substation, Hammond) La.

Variety tests of strawberries. Miss.

Variety tests of grapes and strawberries. Md.



HORTICULTURE--Strawberries. (Cont.)

- Strawberry variety tests.--To test varieties cultivated in the States and in Europe and to study their adaptability for hybridization. (Sitka Substation) Alaska.
- Variety testing of strawberries.--To determine if there are any varieties of strawberries more desirable as commercial varieties than Klondike and Missionary, the two leading sorts. (Willard Substation) N.C.
- Bush fruits.--To test some of the most popular varieties of bush fruits and strawberries. Okla.
- Variety tests. Tests with strawberries and potatoes, and blight-resistant pears. (Hood River Substation) Oreg.
- Varietal trials of various market garden crops, such as Irish potatoes, sweet potatoes, kale, and strawberries. Tenn.
- Strawberry experiments, including variety test, bud variation, and strawberry culture, fertilizer experiments. W.Va.
- Strawberry variety trials and cultural experiments. Ky.
- Variety and fertilizer tests of strawberries. (Ridgely Substation) Md.
- Strawberry cultural and mulching experiments. (South Haven Substation) Mich.
- Fertilizer tests with strawberries. (Fruit and Truck Substation, Hammond) La.
- The fertilization of strawberries. (College Park, Ridgely, Salisbury, and Marion Substations) Md.
- Strawberry fertilizer test. N.H.
- Plant food and cultural studies with strawberries. N.J.
- Strawberry fertilization. Ohio.
- The nutrition of fruits, with special reference to their hardiness. Orchard and strawberry nutrition. (A) Mo.
- Fruit bud formation of the strawberry. Pa.
- (a) To collect phenological data on a number of different varieties of strawberries, blackberries, raspberries, currants, and loganberries.  
(b) To ascertain, if possible, the best varieties of these different fruits for commercial and home plantations. N. Mex.
- Strawberry topping experiments. (Hood River Substation) Oreg.
- Economics of strawberry production. (Hood River Substation) Oreg.
- Davis County Experiment Farm.--(a) Onion variety test, (b) comparison of sweet Spanish types, (c) green bean variety test, (d) irrigation studies of canning peas, (e) cost of producing strawberries, (f) miscellaneous studies. Utah.



HORTICULTURE--Sweet Corn.

Breeding sweet corn.

N.Y. Cornell.

Sweet corn breeding investigations.--The production of strains of sweet corn which will yield better, pack better quality canned corn, mature more uniformly or earlier or later, and be more uniform as to size and type. Ill.

Improvement of yield, quality, and uniformity of sweet corn. Wis.

Sweet corn breeding: Production of a strain of sweet corn for Porto Rico. Porto Rico.

Selection of sweet corn for increased sugar content. Ind.

Sugar corn seed investigation and improvement. (P) Md.

Sweet corn fertilizer experiments. Iowa.

Fertilizer experiments designed to determine the proper combination and use of nitrogen, phosphoric acid, and potash for sweet corn and potatoes. (P) Me.

Sweet corn fertilizer investigations.--To determine the effect of nitrogen, phosphorus, and potash on the yield and quality of canning factory sweet corn. Ill.

Metabolism studies with sweet corn. (A) Md.

Sweet corn investigations. Seed studies, including (a) covering of the seed, and (b) the use of immature seed. Iowa.

A study of the effects of removal of suckers of sweet corn, on earliness, size of ears, total yield, and other conditions. N.Y. Cornell.

Tomatoes.

A study of inheritance in the tomato. Pa.

Tomato breeding investigations. Ill.

Tomato breeding and selection. (P) Miss.

Breeding of tomatoes.--To obtain varieties of tomatoes adapted to Porto Rico conditions and of good quality and yield. Porto Rico.

Breeding of horticultural plants, including tomatoes, small fruits and celery. Utah.

Breeding disease-resistant tomatoes with special reference to the western blight or summer blight. (Riverside Substation) Calif.

HORTICULTURE--Tomatoes. (Cont.)

The development of wilt-resistant tomatoes.	Ga.
Tomatoes for wilt resistance. (South Mississippi Substation)	Miss.
The propagation of wilt-resistant strains of tomatoes.	Ark.
Developing wilt resistance in the Indiana strain of Baltimore tomatoes.	Ind.
Breeding and selection of varieties of tomatoes for canning.	Md.
Tomato seed selection for disease resistance.	Mo.
Seed selection tomatoes.--Effect of using home-grown seed as contrasted with purchased seed.	Mont.
Tomato seed production.--Production of home-grown seed of known purity, productiveness, and disease resistance.	Ind.
Improvement of varieties and strains of tomatoes. (Graham Substation)	Mich.
Tomato variety, selection, and breeding test.--To determine the varieties of tomato best suited to local conditions: To improve the local (Cristobal) variety: To develop a suitable variety by crossing of imported and local varieties.	Guam.
Tomato experiments.--To try the different methods of producing early tomatoes; to test a number of representative varieties of the early and late ripening kinds; to try different cultural methods.	N.Mex.
Tomato variety tests.	Colo.
Tomato variety test.	N.C.
Tests of varieties of tomatoes and early plants on total yield. (Ridgely Substation)	Md.
Tomatoes: The relative merits of varieties for different purposes.	Pa.
Variety test with different vegetables and tomatoes for commercial growing in Mississippi.	Miss.
Tomato investigations. Contrast in value of varieties- Grand Rapids Forcing and Bonny Best.	Oreg.
Tomatoes: Variety culture and fertilizer tests. (Holly Springs Substation)	Miss.

HORTICULTURE--Tomatoes. (Cont.)

- Fertilizer experiments with tomatoes. Iowa.
- A study of the fertilizer requirement of tomatoes and cabbage. Pa.
- Cooperative fertilizer tests with cannery tomatoes. Ind.
- Plant food studies with tomatoes. A study of the effect of different fertilizer elements and mixtures of these elements. A comparison of home and commercial fertilizers and rate and methods of application of fertilizers. N.J.
- Tomato culture with stable manure substitutes in field and greenhouse. R.I.
- The influence of green manures supplemented by commercial fertilizers on tomato production. (P) Md.
- Japanese millet as green manure for tomatoes. R.I.
- Rye, Japanese millet and Italian rye grass as green manures for early tomatoes. R.I.
- Field studies in tomato nutrition under various combinations of fertilizers and manures, with laboratory studies of carbohydrate and nitrogen contents of the plants. N.Y. Cornell.
- A study of the effect of phosphorus upon the time of maturity, quality, yield, and chemical composition of the tomato fruit. N.H.
- Nutrition of the tomato. Studies intended to throw light upon conditions within the plant, correlated with certain external treatments and the response of the plants to those treatments. At present confined to nitrogen nutrition. N.Y. Cornell.
- The effect of soil type and fertilizer ratios on the quality of the tomato. (P) Md.
- Cultural methods with tomatoes. Md.
- Factors affecting setting of fruit on the tomato. (A) Okla.
- Tomato experiments. (Raymond Substation) Miss.

Tung Oil Nut Trees.

- Propagation and planting tests with the tung oil nut tree. Fla.



HORTICULTURE--Vegetables and Truck Crops, General.

- Breeding and selection of vegetables, including variety trials with the squash, pea, melon, bean, onion, tomato, sweet corn, pepper, celery, beet, head lettuce, and cabbage. Minn.
- Vegetable and fruit and nut breeding; selection and testing. Ark.
- Breeding vegetables for North Dakota.--To develop new varieties and improve old ones, especially for North Dakota conditions. N.Dak.
- Vegetable plant improvement: Spinach, sweet corn, eggplant, and peppers. Ohio.
- Development of improved strains of vegetables. Ill.
- Variety improvement through seed and root selection. (Market Garden Substation) Mass.
- Strain tests of vegetables. Ill.
- A morphological and botanical study of varieties of vegetables. (P) N.Y. State.
- Vegetable gardening -- variety testing. (Northeast Substation, Duluth) Minn.
- Variety testing of vegetables. (Graham Substation) Mich.
- Variety tests of vegetables.--To find the varieties best suited to that State. Okla.
- Variety tests of garden crop. (North Central Substation, Grand Rapids, and Northwest Substation, Crookston) Minn.
- Testing new varieties and strains of vegetables. Md.
- Varietal trials of various garden, small fruit, and orchard crops. (Jackson Substation) Tenn.
- Variety testing of fruit trees, small fruits, and vegetables. Idaho.
- Tests of vegetables.--To find the varieties that do best in this climate. (Sitka Substation) Alaska.
- Varietal trials of various market garden crops, such as Irish potatoes, sweet potatoes, kale, and strawberries. Tenn.
- Garden crop investigations. Variety tests and source-of-seed tests. Kans.
- Variety test with different vegetables and tomatoes for commercial growing in Mississippi. Miss.

HORTICULTURE--Vegetables and Truck Crops, General. (Cont.)

- Variety tests of vegetables.--To determine hardiest and best varieties for North Dakota conditions. N.Dak.
- Variety trials of vegetables on peat land. Minn.
- Vegetables: variety and cultural tests. (Judith Basin Substation) Mont.
- Vegetable experimentation, variety trials, and cultural tests. Nebr.
- Variety cultural tests of vegetables. (Judith Basin Substation) Mont.
- Variety and cultural tests of vegetables under dry land conditions. (Huntley Substation) Mont.
- A study of Maryland vegetables as to varieties, cultural methods, and marketing. Md.
- Cultural tests with vegetables.--To determine the best planting dates, distances, and methods for growing common vegetables in North Dakota. N.Dak.
- The needs and nutrient content of vegetables. (P) R.I.
- Nutrition studies of various vegetable crops on peat land. Minn.
- Garden fertilization. (Northeast Substation, Duluth) Minn.
- Amounts of manures and fertilizers to keep soil fertile for vegetable production. Md.
- Fertilizer experiments with market garden crops. Ill.
- Fertilizer tests of garden crops. (Northwest Substation, Crookston, and North Central Substation, Grand Rapids) Minn.
- Fertilizer tests for fruits and vegetables. (South Mississippi Substation) Miss.
- Fertilizers for truck crops. (Wooster and Marietta Substations) Ohio.
- Test to determine fertilizer needs of different vegetables. Ala.
- Soil management and fertilizer studies with vegetable crops.  
A fundamental study of the parts played by manures and commercial fertilizers in the production of vegetables under intensive conditions. N.Y. Cornell.



HORTICULTURE--Vegetables and Truck Crops, General. (Cont.)

- Commercial fertilizer, with and without manure, on truck crops. (North Central Substation, Grand Rapids) Minn.
- Fertilizer experiments with truck crops in a three-year rotation on brown silt loam in soil of the Corn Belt. Ill.
- Soil treatment for truck crops in a four-year rotation in northern Illinois. Ill.
- Fertilizer experiment with various vegetables in northern Illinois. Ill.
- Influence of fertilizers on yield, grade, and carrying (shipping) quality of vegetables. (P) Ala.
- Nitrogen studies with vegetables. N.J.
- Effect of continued applications of potash salts on vegetable production. Md.
- Various vegetable and truck crop rotations. R.I.
- Vegetable growers' rotations. Crops variable: Ten cords manure v. fertilizer alone. R.I.
- Variable cash crops preceded by sweet clover, alfalfa, mammoth clover, and by vetch to determine their hardiness and value as green manures and nitrogen fixers. R.I.
- Vegetable growers' rotations: cabbage-beets, tomatoes-spinach, lettuce-celery; also with beets replaced by vetch, sweet clover and red clover for green manures and with spinach and lettuce similarly replaced by rape (autumn), oats (spring), rye and wheat; with 32 tons of stable manure alone, 16 tons of manure and fertilizer having more and less nitrogen, phosphorus and potassium, and with peat to supply organic matter equal to that in 16 tons of manure. R.I.
- Beets followed by clover, by cowhorn turnips, and by soy beans (all three plowed under in fall) and by clover, rye, and by timothy (plowed under in spring); and lettuce followed by the same green manure scheme: Fertilizer only. R.I.
- Beets-cauliflowers, spinach-carrots, eggplant, also with cauliflower replaced by rye grass and clover for green manure and eggplant followed by rye for green manure; with 31, 16, 8 and 0 tons manure, and fertilizer in each case; more and less nitrogen, phosphorus and potassium; peat; subsoiling, and graveling; horse manure with straw v. sawdust or shavings bedding. R.I.



HORTICULTURE--Vegetable and Truck Crops, General. (Cont.)

- Vegetable seed growing.--To learn how far it is possible to produce vegetable seed in Alaska and the varieties best suited to the purpose. (Sitka and Fairbanks Substations) Alaska.
- Source-of-seed tests with vegetables.--To determine what garden seeds tend to degenerate when grown for several successive generations, from locally grown seed, and the rate of degeneration for different vegetables. Virgin Islands
- A study of seed production of garden crops. Ga.
- Transplanting studies with vegetables. N.Y. Cornell.
- A study of the effect of climate and soil on the composition of vegetables. Hawaii.
- Relation of water level to the growth, development, and quality of various vegetable crops on peat land. Minn.
- Irrigation of truck crops. Iowa.
- Irrigation of small fruits and vegetables. Mich.
- Overhead irrigation of garden crops. (Northwest Substation, Crookston) Minn.
- The effect of overhead irrigation of vegetables. R.I.
- The irrigation of market garden crops with regard to profitability. Tenn.
- Cropping land to vegetables under irrigation.--Yields, costs, and miscellaneous data on cabbage, beans, cauliflower, spinach, peppers, etc. Oreg.
- Disease-resistant vegetables. Ohio.
- The selection of hardy and disease-resistant strains of certain garden crops. Tenn.
- Canning crops: (a) Method of planting, (b) irrigation of canning peas. Utah.
- Winter production of table vegetables. (P) R.I.
- Truck crop problem on a muck soil. N.Y. State.
- Vegetable growing in high altitudes. Colo.
- Vegetable and small fruit studies for the Delta. (Delta Substation) Miss.

HORTICULTURE--Vegetable and Truck Crops, General. (Cont.)

Winter vegetables on Yuma Mesa.	Ariz.
Vegetable growing experiments.--To obtain data on the production of vegetable crops in the Virgin Islands, the varieties best suited to local conditions, the season in which they can be most advantageously planted, and methods of planting and cultivation most profitable under Virgin Islands conditions. Virgin Islands	
Studies with miscellaneous vegetables in north Jersey.	N.J.
Forage, truck, and field crop trials. (Everglades Substation, Belle Glade)	Fla.
Vegetable studies. (South Mississippi Substation)	Miss.
Vegetable production studies.	Tex.
The raising of vegetables. (Raymond Substation)	Miss.
A study of oriental vegetables in Hawaii.	Hawaii.
Analytical investigation of the nutrient content of common vegetables. (P)	R.I.

Walnuts.

Walnut breeding investigations. (Citrus Substation, Riverside)	Calif.
The improving of trees, especially the black walnut.--To develop more desirable and hardy strains of trees which are only half hardy.	N.Dak.
Variety and stock tests of pecan and walnut trees.	Fla.
Field fertilizer trials with walnuts. (Citrus Substation, Tuston and Santa Paula)	Calif.
Pecan, English walnut, and almond experiments: (a) To ascertain whether New Mexico climatic and soil conditions are suitable for the growing of these nut trees, (b) to study the different methods of preventing winter injury to the trees, and an investigation on originating, if possible, a late-blooming almond.	N.Mex.
Walnut grafting investigations.	Mo.
Sunburning and winterkilling of walnut trees. (Citrus Substation, Riverside)	Calif.
Development of walnut seedlings.	Oreg.
Walnut plantation on overflowed land.	Iowa.



HORTICULTURE--Watermelons.

Fertilizer requirements, varieties, cultural methods, and seed "place effect" of the watermelon and canteloupe. Mo.

Wilt-resistant watermelons.--To determine whether the Conqueror watermelon developed by the U.S.D.A. is resistant under Illinois conditions and, if so, whether it is a suitable market melon; also, whether crosses between this variety and standard varieties will result in an improved melon having resistant qualities. Ill.

Winter Injury. (See also specific fruits.)

Winter injury of fruit crops. (A) Wash.

A study of the nature, causes, and prevention of winter injury to fruits, with special reference to the apple, including the root system. (A) N.H.

Winter injury.--To determine the best procedure in handling trees injured by the severe winter of 1919-20. (Hood River Substation) Oreg.

Effect of low temperature on plants. Physiological factors concerned in frost injury. Minn.

Effects of low temperatures on plants.--Killing of seeds and seedlings of forest trees and horticultural plants by low temperatures. Minn.

Effects of low temperatures on plants.--Desiccation in the frozen condition as a cause of injury. Minn.

A study of air drainage and spring temperature variations as affecting frost injury to fruit. (A) N.Mex.

The recovery of fruit trees from serious winter injury. N.Y.Cornell.

Yautias.

To learn best varieties and cultural methods for yautias, dasheens, and sweet potatoes for Porto Rico. Porto Rico.

Miscellaneous.

Breeding of horticultural plants, including tomatoes, small fruits and celery. Utah.

The relative response of gooseberries, currants, red and black raspberries, blackberries, young apple trees, and corn, when growing in the same soil, to applications of fertilizers. N.Y.Cornell.



HORTICULTURE--Miscellaneous. (Cont.)

Treatment of greenhouse soil in solid beds. Drainage, freezing, and drying.	Md.
Greenhouse cropping for one season.	Oreg.
Greenhouse investigations.--To determine what greenhouse crops are best grown in North Dakota, the best varieties and how best to grow the crops under North Dakota conditions.	N.Dak.
Improvement of greenhouse crops and a study of crop substitution.	Ohio.
Nursery propagation. (South Haven Substation)	Mich.
Plant propagation (nursery).--To survey nursery practices and methods of asexual reproduction.	Tex.
Variety tests of drug plants. (Hermiston Substation)	Oreg.
Studies in the problems of operation of central fruit-packing houses.	N.Y.Cornell
Horticultural survey of the State: (a) Ornamental nursery stock, (b) small fruits, (c) general.	Utah.
Miscellaneous horticultural observations. (Corvallis Substation)	Mont.
Miscellaneous horticultural work.	W.Va..
Acclimatization tests of imported and other plants.	Ga.
Propagation of shrubs.	Wis.

SEEDS.

Germination Studies.

- Physiology of seed germination: (a) Physiology of dormancy in seeds, (b) effect of seed treatment on germination, and (c) respiration studies in seeds. Minn.
- Physiology of seeds. (P) Colo.
- A study of seed coats and delayed germination. Iowa.
- Purity and germination tests of farm seeds. Mont.
- Germination tests of vegetable seeds. N.Y. State.
- Studies of the germination of beet seed. N.J.
- Studies of the germination of celery seed. N.J.
- Study of methods of making germination tests. Mont.
- Purity and germination tests of official seed samples. N.Y. State.
- Analyses and germination tests of collected (official) samples. Md.
- Analyses and germination tests of collected (unofficial) samples. Md.
- Effect of soil treatment on seed germination and the damping off of seedlings in the greenhouse; study of some compounds of copper. N.Y. Cornell.

Production and Distribution.

- Experiments in seed production. Idaho.
- Increase of pure seed of standard varieties (field crops). (Judith Basin Substation) Mont.
- Pure seed increase fields. Mont.
- Pure seed distribution.--To increase and distribute pure seed of the various crops which have been improved. (Aberdeen Substation) Idaho.
- Pedigreed seed distribution. (Northwest Substation, Crookston) Minn.
- Increase and distribution of seed. Wash.
- Production in quantity of carefully selected pedigreed seed of recommended varieties of farm crops. (West Central Substation, Morris) Minn.

SEEDS--Production and Distribution. (Cont.)

To increase and disseminate pure seeds of cereal and forage crops. N.Dak.

Cooperative seed production and distribution. (Southeast Sub-station, Waseca) Minn.

Seed and plant distribution.--To encourage more general and more diversified planting, to provide good seeds and plants which cannot be obtained elsewhere on the island, and to pave the way to more highly developed general agricultural system. Guam.

Miscellaneous.

Seed investigations and control. Iowa.

Studies of seed control methods and the relation of foreign matter to source. Md.

Seed testing. Minn.

Seed testing for users of agricultural seeds. N.Y.State

Studies in identification of seed of the genus Brassica. Oreg.

Studies on the longevity of grass and clover seeds. N.J.

A study of plant growth and crop production in relation to size and weight of seed. Relation of seed weight to variability of soy beans and buckwheat in solution cultures. (A) N.J.

Influence of form and amount of sulphur on growth and development of seed and of sulphur loving plants. Wis.

Disinfecting seeds. N.J.

The drying of agricultural seeds for the reduction of moisture content as a preservative measure in storage. N.J.



WEEDS

Eradication and Control.

Weed control.	Iowa.
Weed control.	Utah.
Weed control experiments.	Mont.
Experiments in the control and eradication of weeds.	N.Y. Cornell.
Methods for eradication and control of weeds.	S. Dak.
Weed eradication investigations.	Idaho.
Weed eradication experiment.	Wash.
Study of methods of weed eradication.	Wis.
Study of weed control. Control of annual weeds. (Northwest Substation, Crookston)	Minn.
Weed control by sprays.	Oreg.
The control of weeds by cyanamid.	Minn.
Eradication of weeds from seed beds and transplant beds, and in forest plantations, by chemical sprays.	N.Y. Cornell.
Weed control. Clean culture method.	Oreg.
Elimination of weeds from lawns and putting greens by physiologically acid top-dressing.	R.I.
Experiments in the eradication of bindweed. Trials of chemical and tillage methods of eradicating bindweed, <u>Convolvulus arvensis</u> . (Hays Substation)	Kans.
Coco eradication test. (Delta Substation)	Miss.
To determine a practical method of eradicating Johnson grass.	N. Mex.
A survey of the occurrence of the perennial sow thistle with methods of controlling and eradicating it.	Minn.
Studies of weed control. Control of perennial sow thistle. (Northwest Substation, Crookston)	Minn.
Studies of weed control. Control of Canada thistle. (Northwest Substation, Crookston)	Minn.
Studies of weed control. Control of quack grass. (Northwest Substation, Crookston)	Minn.

WEEDS--Miscellaneous.

- Investigations of the life habits of some perennial weeds of  
New York. N.Y.Cornell.
- Habit of growth of the Canada thistle. Ohio.
- Studies of weed control. Vitality of Canada thistle seed.  
(Northwest Substation, Crookston) Minn.
- Studies of weed control. Vitality of perennial sow thistle seed.  
(Northwest Substation, Crookston) Minn.
- Effect of weeds upon crop production. Iowa.
- The preparation and distribution of specimen cases of noxious  
weed seed. Minn.

FORESTRY.

Basket Willows.

- Basket willow growing.--To introduce basket willows in Alaska.  
(Sitka Substation) Alaska.

Forest Management.

- Management of native wood lots. Iowa.
- Wood lot management. Pa.
- Studies of farm woodlands. Idaho.
- Determination of the best systems of management of the several  
natural and artificial types of native woodlands with respect;  
(a) To regeneration, (b) to increasing wood production, and  
(c) to improving the quality of stand. Ohio.
- Thinning of immature stands of white pine to improve the quality  
and rate of growth. N.H.
- Effect of thinning in white pine. Three grades of thinning.  
(Shaker Substation) Conn.State.
- Thinning of Jack and Norway pine. Minn.
- Effect of thinning in hardwoods. One grade in chestnut oak. Conn.State.
- Methods of thinning stands of redwood second growth.--To  
determine those methods most conducive to maximum rate of  
growth and value of product. Calif.

FORESTRY--Forest Management. (Cont.)

Silvicultural management of wood lots in central and southern New York. N.Y. Cornell.

Silvicultural management of the maple sugar bush. N.Y. Cornell.

Methods of management of species of conifers and hardwoods that survive. Conn. State.

Working plan for Cloquet Forest. Minn.

Working plan for Itasca Park. Minn.

Forest Mensuration.

Studies in forestry yield and volume. Minn.

Rate of growth and possible yield of wood lots. Mich.

Studies on growth and habits of several species of conifers and hardwoods. Conn. State.

Volume, growth, and yield studies of Adirondack forest types by permanent sample plats. N.Y. Cornell.

Rate of growth, volume, and yield of hardwood trees. Mich.

Volume, growth, and yield studies of second growth hardwoods in the Adirondacks. N.Y. Cornell.

Volume, growth, and yield studies of central and southern New York hardwoods. N.Y. Cornell.

Volume, growth, and yield of coniferous plantations. N.Y. Cornell.

Volume study of white spruce. Minn.

A yield study of white fir (Abies concolor) in the California pine region. Calif.

Distribution and growth of forest trees as influenced by soil conditions.--To study the growth and yield of forests as influenced by soil factors. Conn. State.



FORESTRY--Forest Nurseries.

Forest nursery.	Iowa.
Forest nursery studies.	Minn.
State forest nursery: Testing of trees and shrubs suitable for windbreaks, timber; or landscape purposes. (Fort Hays Substation)	Kans.
Improvements in (forest) nursery practice.	Mich.
Propagation of forest trees: Determination of the best methods for the production of forest planting stock.	Ohio.
Fertilizing in forest nursery practice.	N.Y.Cornell
Production of hardwood nursery stock and establishment of hardwood plantations.	N.Y.Cornell.
Coniferous seed bed study.--To determine (a) the value of fertilizers in seed beds, (b) the value of different amounts of seed, (c) the value of dusts and sprays in preventing damping off.	Conn.State.

Forest Products.

Investigations in forest products. Marketing forest products in Iowa.	Iowa.
Properties and uses of second-growth redwood. (Berkeley Substation)	Calif.
Properties and uses of native California hardwoods. (Berkeley Substation)	Calif.
Utilization of California-grown eucalyptus. (Berkeley Substation)	Calif.
The wood-using industries of California.	Calif.
Chemical studies of forest products.	Minn.

FORESTRY--Reforestation

- Studies in reforestation. (Coastal Plains Substation) Miss.
- Studies in forestry regeneration. Studies in forest planting. Minn.
- Reforestation of waste lands including experimental woodlot and shelter belt planting. Iowa.
- Forest reproduction. A study of the underlying principles governing the natural reproduction of forest growth. Vt.
- Reforestation: Studies of the rate of growth of tree species. Ohio.
- Comparative growth of different kinds of forest trees. Thickness of planting. (North Central Substation, Grand Rapids) Minn.
- Determination of species, and mixtures of species adapted for commercial plantations, windbreaks, and shelter belts, in different sections of Ohio, and methods of planting and management. Ohio.
- The reforesting with useful trees of a tract of 200 acres. denuded by charcoal burners, and of 80 acres of hill land formerly devoted to cane, pineapples, and other crops. Porto Rico.
- Mahogany and other species for forestation work.--To determine the annual rate of growth of mahogany and the distance between trees that give the best results on low valley lands and hillside lands. Virgin Islands.

Tree Planting.

- Forest planting studies. Minn.
- Experimental tree planting. Idaho.
- Studies in forest plantations: (a) Comparative growth of various species, (b) reasons for success or failure, (c) soil and other site factors necessary for success of each species. Conn. State.
- Forest plantations: To determine best species of trees to plant for various purposes and different qualities of soils, and yields that may be expected at various ages from such plantations. Mich.
- Experimental forest plantings. Pa.
- Forestry experiments to determine methods of seeding and rate of growth of various species. S.C.
- The growth of forest plantations. N.H.

FORESTRY--Tree Planting. (Cont.)

Comparison of a wide variety of conifers and hardwoods.	Conn. State.
Tree studies: Hardwoods for Iowa planting.	Iowa.
Tree studies: Evergreen trees for Iowa planting.	Iowa.
Hardy catalpa planting on overflowed lands.	Iowa.
Hardy catalpa planting on upland soil.	Iowa.
Carolina poplar on overflowed lands.	Iowa.
Development of stands of Big Tree ( <u>Sequoia gigantea</u> ). (Tulare County)	Calif.
Underplanting hardwoods with white pine.	Iowa.
Planting experiments in the Berkeley Hills. (Berkeley Substation)	Calif.
Growth, returns, and uses of planted cottonwood in Iowa.	Iowa.
Planting to determine spacing and methods of fixing forest trees.	Pa.
Regeneration of planted wood lots.	Iowa.

Windbreaks.

Windbreak plantations. (Northeast Substation, Duluth)	Minn.
Demonstration windbreak plantations.	Minn.
Windbreak planting investigations, including degree of success, soil, planting conditions, weather, and cultivation.	Minn.
Variety tests of windbreak trees. (Hermiston Substation)	Oreg.
Windbreaks: Comparing different methods of planting and subsequent methods of management. (North Central Substation, Grand Rapids)	Minn.

Wood Studies.

Studies of Minnesota woods.	Minn.
Relative durability of various pines, and of redwood cut from old and second growth. (Berkeley Substation)	Calif.
Relative durability of Idaho woods.	Idaho.



FORESTRY--Wood Studies. (Cont.)

Studies in the decay of wood. Colo.

Determination of moisture content of different woods under various conditions and their adaptability for special purposes. Pa.

Wood collection. Minn.

Miscellaneous.

Hybridization of forest trees. Mich.

Varietal and cultural tests. Kans.

Quantitative and qualitative survey of cut-over lands. Minn.

Agricultural possibilities of logged-off lands. Idaho.

Experiments in artificial reproduction of redwood cut-over lands. Calif.

A study of tolerance of forest trees. (A) Vt.

Seed production of white pine in Ithaca regions. N.Y. Cornell.

The germination of forest trees. Iowa.

A study of the stem-form of second-growth redwood. (Berkeley Substation) Calif.

A survey of the wastes resulting from the logging and milling of California redwood and associated species. Calif.

Methods of killing trees to prevent production of root suckers and stump sprouts. N.Y. Cornell.

Use of poisons to kill trees so as to prevent their sprouting. Mich.

Forest survey. Minn.

Forest survey: A survey of the forest areas of the State for the purpose of determining the resources in standing timber, the condition of the woodlands with respect to future yields, lands which should be permanently devoted to forestry, and the area and condition of idle areas within the State. Ohio.

A study of the forest trees of Iowa. A survey of the forest trees and shrubs of the State. Iowa.

Forest trees of Minnesota: Range and distribution studies. Collection of authentic material of leaves and fruits and preserving same. Minn.

FORESTRY--Miscellaneous. (Cont.)

Tree studies. European larch.	Iowa.
Artificial reproduction of redwood ( <u>Sequoia sempervirens</u> ). (Coast Counties)	Calif.
Tree studies. White pine.	Iowa.
Black locust experiment.	Pa.
Response of white pine when released from shade.	N.H.
Forest protection studies.	Minn.
Effect of forest fires on wooded slopes.	Iowa.
Effect of grazing on woodlots.	Iowa.
Forest insurance.	Mich.
Forest taxation.	Mich.
Sprout study.	Mich.
Pruning evergreen plantations.	Mich.
An investigation of the distribution and growth of forest trees as influenced by soil conditions.	(P) Conn.State.
To determine the basic factors inherent in forest soils which influence the natural growth and distribution of trees.	Conn.State.
To study the natural distribution of tree species and forest types with reference to soil.	Conn.State.
Effect of water level in swamps upon tree growth.	Minn.
Fruit and forest tree trials. (Everglades Substation, Belle Glade)	Fla.

PLANT PATHOLOGY

Alfalfa Diseases.

- Pathological and physiological study of the anthracnose fungus (*Colletotrichum trifolii*) of alfalfa. (A) Miss.
- Downy mildew of alfalfa. Iowa.
- Root diseases of alfalfa.--To determine cause of rotting of alfalfa roots, and possible remedy; including prevalence, symptoms, histological studies, physiology of diseased roots, isolation of causal organism and its identification, and proof of pathogenicity. (A) Colo.

Apple Diseases.

- Apple diseases. Me.
- Apple diseases. N.Y. State.
- Control of apple diseases in Arkansas. Ark.
- Studies on fruit diseases: (a) Investigation of apple diseases, (b) arsenical injury of the peach. N.J.
- Influence of environmental conditions on the development of certain apple diseases. (P) N.J.
- Apple leaf diseases.--To determine manner of overwintering, time and condition of infection, and methods of control of apple leaf spot and scab. W.Va.
- Apple root diseases.--Cause and control. N.Y. Cornell.
- Anthracnose control (of apple): A study of the persistence and efficacy of the spring Bordeaux--oil spray, Bordeaux in the delayed dormant summer and fall applications and various proprietary Bordeaux mixtures. (Hood River Substation) Oreg.
- Control of bitter pit. N.H.
- Apple blotch. Okla.
- Apple blotch investigations: To determine the effect of dormant sprays upon the apple blotch fungus within the cankers and upon the subsequent development of the disease on fruit and young wood. Ind.
- Fire blight of pear and apple. Infection experiments, study of disinfectants, resistant types. N.Y. Cornell.



PLANT PATHOLOGY--Apple Diseases. (Cont.)

- Treatment of apple canker disease. Testing methods of sterilizing cuts to prevent infection of blister canker and for sterilizing the cut surface of a cleaned canker. Mo.
- Investigations for the control of the Illinois blister canker of apple. Iowa.
- Apple blister canker control.--To test cutting out of cankers and orchard sanitation as a practical method of control of apple blister canker. Ill.
- Perennial canker of apple trees. (A) Oreg.
- Crown gall of apple nursery stock. Iowa.
- Effect of crown gall upon apple trees. N.Y.State.
- Apple flyspecks: A study of the morphology and taxonomy of the causal organisms. N.Y.Cornell.
- Apple fruit--spot diseases. N.Y.State.
- Baldwin fruit spot investigations. Mich.
- Apple measles. (A) N.Mex.
- The etiology and prevention of apple rots. Wash.
- Studies in the black rot of apples. Pa.
- Control of black rot and some other prevailing diseases of late varieties of apples. (P) Tenn.
- Black root rot of the apple: A study of symptoms, etiology, transmission, and control of this disease. (A) Va.
- Apple rust: Detailed study of the life history of fungus or fungi causing apple rust in West Virginia. (A) W.Va.
- Apple scab. Md.
- The control of apple scab. N.H.
- Apple scab control. (P) Me.
- Apple scab and its control. Wis.
- A study of certain phases of the life history of apple scab. N.Y.Cornell
- Spraying and dusting experiment for the control of apple scab. Pa.

PLANT PATHOLOGY--Apple Diseases. (Cont.)

Apple scab: The behavior of the disease and a critical study of the spraying program necessary for its control. Va.

Investigations of diseases of orchard fruits, especially apple scab, cherry leaf spot, and fire blight, in relation to control measures. (P) Wis.

Experimental apple spraying.--To determine the comparative value of Bordeaux mixture, commercial lime sulphur, and sulphur dust in controlling apple scab and other diseases of the apple. Minn.

Dusting v. spraying.--To determine the efficiency of dust methods of control of insects and fungus diseases of the apple. Ind.

Comparison of dusting and spraying for the control of insects and diseases on the apple. W. Va.

Apricot Diseases.

A study of apricot bacterial gummosis and its control. (Citrus Substation, Riverside) Calif.

Brown rot of apricot. (Mountain View Substation) Calif.

Avocado Diseases.

Fruit spotting of avocados. (A) Fla.

Avocado scab. (A) Fla.

Banana Diseases.

The control of banana wilt.--To control banana wilt. Porto Rico.

Bean Diseases.

Diseases of beans and their control. Wis.

Bean anthracnose. N.H.

Bean bacteriosis and anthracnose. The relative susceptibility of varieties. Minn.

A bacterial disease of beans new to New York State. N.Y. Cornell.

PLANT PATHOLOGY--Bean Diseases. (Cont.)

The bacterial blight of the bean. The effect of environmental factors on the diseases, the nature of the causal organism, and the production of disease-resistant stock. N.Y.Cornell.

The dry-rot of the bean: (a) The nature and cause of the disease, and (b) the effect of soil environment. N.Y.Cornell.

Dry root rot of beans caused by *Fusarium* sp. (A) Va.

The nature and control of Michigan bean diseases, including (a) a study of bean mosaic, (b) a study of resistance of various bean varieties to anthracnose and mosaic. Mich.

Mosaic and dry root rot of beans ... Mosaic. (P) Idaho.

Mosaic disease of beans and other legumes: Nature, cause, and control. N.Y.Cornell.

Bean rust. (A) Va.

Study of yeast disease of the bean (*Vicia faba*) - life history studies. N.Y.Cornell.

Yeast spot of Lima beans. (A) Va.

The characteristics and the control of certain Lima bean diseases. Pa.

Hereditary abnormalities of beans mistaken for diseases. N.Y.Cornell.

Botrytis Diseases.

Studies on Botrytis and Sclerotinia diseases of plants, including Botrytis diseases of peony, Botrytis blight of golden seal. N.Y.Cornell.

Cabbage Diseases.

Blackleg of cabbage caused by *Phoma*. Pa.

Study of the control of club root. Pa.

Experiments with *Rhizoctonia* of potato, club root of cabbage, and onion smut. N.Y.Cornell.

Cabbage yellows. Md.

Cabbage breeding for the control of yellows. Iowa.

Cabbage diseases of Wisconsin and their control, including yellows, black rot, blackleg, and club root. (A) Wis.



PLANT PATHOLOGY--Canker, European.

European canker: Life history and control measures. (A) Oreg.

Carrot Diseases.

Investigations of carrot blight. Etiological, pathological, symptomatic, and therapeutical studies of the disease with morphological, physiological, and taxonomic studies of the pathogene. (A) Mass.

Carrot diseases on Long Island. N.Y. State.

Cauliflower Diseases.

Cauliflower diseases on Long Island. N.Y. State.

Celery Diseases.

The control of celery blight with sprays and dusts. Conn. State.

Relation of the health of the host plant to infection by leaf-spot fungi, with special reference to Septoria leaf-spots of celery and tomato. N.Y. Cornell.

Investigations relating to celery diseases: (a) Septoria apii as a pathogene, (b) Fusarium stunting of celery. Mich.

Fusarium root-rot of celery. Ohio.

Seed bed diseases of celery. (A) Fla.

Cereal Diseases, General. (See also specific grain diseases.)

Cereal disease investigations. Miss.

Disease studies with cereals. Iowa.

Cereal and field crops disease studies. Colo.

Cereal disease investigations.--To learn what varieties are resistant to disease in order to breed disease-resistant strains. (Dickinson Substation) N. Dak.

Ergot of cereals. The relation between the disease on wild grasses and on rye and other cereals. Seed treatments. Minn.

Investigations on grain rust. Wis.

Epidemiology of cereal rusts. (A) Minn.

PLANT PATHOLOGY--Cereal Diseases, General. (Cont.)

- Biologic specialization in cereal rusts. (A) Minn.
- Agronomic studies of rusts of cereals: (a) Devising remedial treatments for soil, seed, and plants, (b) breeding resistant varieties. (Berkeley and Davis Substations) Calif.
- Cereal leaf rust disease investigations.--To determine, with reference to leaf rusts of wheat, barley, and rye, their life history, fixity to hosts, biological forms, if any, and the relation of these to forms found on other related wild or cultivated grasses; Factors involved in their dissemination; Virulence on different varieties, a study of physiological and ecological factors in relation to host and parasite and an investigation of the possibilities of control through the development and by the selection or breeding of disease-resistant varieties or strains. (A) Ind.
- Study of environmental conditions influencing the development of stem rust in the absence of an alternate host (barberry) (A) Nebr.
- Dusting to control cereal rusts. (A) Minn.
- Investigation of stripe rust of grains and grasses caused by Puccinia glumarum. Idaho.
- A study of rust resistance in small grains. S.C.
- The nature of resistance of cereals to rust. The biochemistry of the resistance of wheat to stem rust. (A) Minn.
- Studies of the behavior of and control methods for wheat rust, wheat, oats, and sorghum smuts; and corn smut and root rot. Kans.
- Rust and smut control in wheat and other cereals and grasses.-- To investigate the life histories and characteristics of the rusts and smuts of cereal grains and grasses; to determine their chief modes of attack, the conditions under which they are most destructive and to establish proper methods of control. N.Dak.
- Grain smuts investigation and control. Mo.
- Comparison of various treating agents for grain smut control. Idaho.
- Agronomic studies of smuts on cereals: (a) Devising remedial treatments for soil, seed, and plants, (b) breeding resistant varieties. (Berkeley and Davis Substations) Calif.
- Smut treatment. (Northwest Substation, Crookston) Minn.
- Smut treatments. The effect of different methods of treatment on the development of covered smuts. Minn.



The foot rot of wheat and other cereals. (A) Wash.

Imperfects on cereals and roots. Mainly on the host range of Helminthosporium causing a serious root and foot rot of wheat, barley, and rye to determine the conditions under which the disease develops. Minn.

Investigations in pathology and control of root and seed infecting diseases, particularly of flax, cereals, and small grains.— To establish the relationship of root and seed infecting diseases of small grains and farm crops of North Dakota, particularly of flax, cereals, and grasses, to methods of cropping, to determine means of control and to prevent accumulation in the seed and in the soil. N. Dak.

Barberry eradication. (A) Minn.

### Cherry Diseases.

A bacterial disease of the Vragg cherry. Colo.

Leaf spot of cherry and plum and its control. Wis.

Investigations of diseases of orchard fruits, especially apple scab, cherry leaf spot, and fire blight, in relation to control measures. (P) Wis.

Chlorosis.

Chlorosis troubles. Idaho.

Chlorosis troubles.--To ascertain the best method of restoring the usual green color of trees and vines affected with chlorosis. N. Mex.

Relation of carbohydrates to chlorosis. N.Y. Cornell.

Field conditions which promote manganese chlorosis. (A) R.I.

Manganese content of crops subject to chlorosis caused by insufficient manganese. (A) R.I.

Manganese deficiency, resulting chlorosis, and other effects. (A) R.I.

### Citrus Diseases.

Anthracnose of citrus fruits. (A) Fla.

Citrus blast. (Riverside Substation) Calif.

Citrus blight. Distribution, cause, and control. Fla.



PLANT PATHOLOGY--Citrus Diseases. (Cont.)

Citrus canker. Growth characters of organism.	(A)	Fla.
Citrus canker. Length of life of the organism in the soil and on old hosts; methods of distribution; control methods.		Fla.
Causes of chlorosis in citrus trees in Arizona.	(P)	Ariz.
Soil and nutrition studies with reference to dieback of citrus.	(A)	Fla.
Gum diseases of citrus. (Citrus Substation, Riverside)		Calif.
Gumming of citrus.	(A)	Fla.
Melanose and stem-end rot of citrus.	(A)	Fla.
Citrus scab. Spraying experiments to determine the proper time for spraying, and the best sprays for the control of the disease.		Fla.
Observations and studies on internal decline of lemons. (Citrus Substation, Riverside)		Calif.
Citrus fruit spots, stains, and rots. (Citrus Substation, Riverside)		Calif.
Routine examination of material sent to the Citrus Experiment Station, and minor studies in mycology and bacteriology. (Citrus Substation)		Calif.

Clover Diseases.

The study of corn root-rot and Fusarium root rot of clover.	(A)	Ohio.
Investigation of the eelworm disease of clover.		Idaho.
Clover mildew and anthracnose.		Md.

Coconut Diseases.

Coconut bud rot.--To determine the causal organism of coconut bud rot and to eradicate the disease.		Porto Rico.
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Corn Diseases.

Corn disease investigations.--To assist and promote investigations on certain corn crop losses and the diseases responsible therefor. To determine the facts relative to the distribution of these diseases. To develop and test control methods and to breed disease-resistant strains and varieties.		Ind.
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PLANT PATHOLOGY--Corn Diseases. (Cont.)

- A bacterial disease of corn. A study of the causes of rotting of corn stalks due to a bacterium. (A) Ark.
- Corn ear rots--their effect on the constituents of affected ears and their progeny. (A) S. Dak.
- Root, stalk, and ear rots of corn. Pa.
- Investigation of the etiology, pathogenesis and saprogenesis of the organism causing rot of the root, stalk, and ear of corn and its allies, and a study of the pathological histology of the hosts. (A) Ind.
- Corn diseases--Dry rots of ear and stalk, leaf spots, seedling blights, and root rots. (P) Iowa.
- Root and stem rots of corn.--To study the organisms found on and in corn kernels, and their effect upon germination and yield. (A) La.
- Diplodia and Basisporium dry rots of corn. Iowa.
- The value of certain rotations in control of corn rot diseases. Ill.
- Corn root rot. (P) Md.
- Root rot disease of corn. N.J.
- Corn root rot, its control and relation to wheat scab. Wis.
- A study of the root rot diseases of corn. Ky.
- The study of corn root rot and Fusarium root rot of clover. (A) Ohio.
- The influence of time of planting upon scutellum, diplodia, and Fusarium rots of corn. Ill.
- To determine the comparative severity of scutellum, diplodia, and Fusarium rots of corn. Ill.
- Effect of seed treatment upon the control of corn rot diseases.  
--To determine the value of treating seed corn with chemicals to control rots which attack corn. Ill.
- Bacterial leaf spot of sorghum and corn. Iowa.
- Downy mildew (Sclerospora graminicola) of common foxtail and corn. Iowa.
- Corn smut. Iowa.

PLANT PATHOLOGY--Cotton Diseases.

- A study of the bacterial diseases of cotton. S.C.
- A study of anthracnose resistance in cotton. (A) Miss.
- Effect of alkali on the resistance of Egyptian cotton to black arm and angular leaf spot. (A) Ariz.
- Effect of alkali on the resistance of Egyptian cotton to Ozonium omnivorum (Texas root rot) (A) Ariz.
- Cotton diseases. Cotton wilt. Fla.
- A pathological and physiological study of cotton wilt, Fusarium vasinfectum Atk. (P) Miss.
- A study of biological strains of cotton wilt fungus, and means of its dissemination. (A) Ark.
- Diseases of cotton. Rust mosaic of cotton. Fla.
- A study of cotton "sore shin." Identity and life history of organism and control of disease. (P) Ga.
- Cotton diseases. Seedling diseases. Fla.
- A study of miscellaneous cotton diseases. S.C.

Cowpea Diseases.

- Diseases of the soy bean and cowpea, with special reference to a bacterial blight, a wilt, and a mosaic. (A) Del.

Cranberry Diseases.

- Fungus diseases and storage rots of the cranberry. Wash.
- Cranberry disease work. Mass.

Crown Gall.

- Crown gall. Ohio.
- Crown gall investigations. Iowa.
- Crown gall control. (Jackson and Columbia Substations) Tenn.
- Crown gall and its control. Wis.
- The prevention of crown gall. (Knoxville, Jackson and Winchester Substations) (A) Tenn.
- Study of the comparative infectiousness of the crown gall organism (Bacterium tumefaciens) with special reference to finding resistant forms of prunus suitable as a root stock. (Riverside Substation) Calif.



PLANT PATHOLOGY--Cucumber Diseases.

- Cucumber diseases and their control. Wis.
- Bacterial blight of cucumbers. (A) Fla.
- Bacterial diseases of cucumbers, known as "Angular leaf spot." (A) Fla.
- Cucumber diseases.--Bacterial wilt and mosaic. Iowa.
- Investigation of downy mildew of cucumber and lettuce. (A) Mass.
- Studies of the cucumber mildew. Life history of the fungus, methods of reproduction, wintering, and methods of control. (A) W. Va.

Date Diseases.

- Studies of Alternaria, Penicillium, and Aspergillus as date rots. (A) Ariz.

Dewberry Diseases.

- Dewberry anthracnose control. N. C.

Disease Resistance. (See also GENETICS.)

- Plant nutrition and its relations to parasitism involving a study of the causes and relationship of attack and mode or causes of resistance to attack of parasitic fungi in flax, cereals, and associated crops. (A) N. Dak.
- Disease resistance in seeds and plants. Md.
- The nature of disease resistance in plants. Wis.
- The biochemistry of disease resistance in plants: (a) Alcohol production by Fusarium lini, (b) respiration of apple twigs in winter, (c) development of enzymes during germination of wheat, (d) pectosinase. (A) Minn.

Diseases of Ornamentals.

- Diseases of ornamental plants. Minn.
- Diseases of ornamentals.--To compile the available information on diseases of ornamental crops. Ill.

PLANT PATHOLOGY--Eggplant Diseases.

Phomopsis of eggplant.	(A)	Fla.
Eggplant wilt.		N.J.
Seed bed diseases of eggplant.	(A)	Fla.

Fig Diseases.

Fig diseases. (San Joaquin Valley)		Calif.
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Flax Diseases.

Investigations in pathology and control of root and seed infecting diseases, particularly of flax, cereals, and small grains.-- To establish the relationship of root and seed infecting diseases of small grains and farm crops of North Dakota, particularly of flax, cereals, and grasses, to methods of cropping, to determine means of control and to prevent accumulation in the seed and in the soil.		N.Dak.
Studies with flax rust and resistance of strains and varieties.		Minn.
Miscellaneous diseases of flax.		Minn.

Flower Diseases.

China aster diseases.		N.Y.State.
Study of aster diseases, especially "wilt" and "yellows."--To determine methods of controlling these diseases and selection of resistant strains.		Ill.
Aster diseases.--Fusarium wilt of asters and aster yellows.		Iowa.
Investigations of diseases of ornamental plants, including the yellows disease of asters and chrysanthemums and corm-borne diseases of the gladiolus.		Mich.
Phytophthora bud rot of Bermuda lilies.		N.Y.Cornell.
Phytophthora leaf spot of Bryophyllum.		N.Y.Cornell.
Red bulb disease of Friesia. (Berkeley Substation)		Calif.
Corm rots of gladiolus: Life history studies; nature of the rots; control. Investigations of the most important diseases (at least three) of this plant.		N.Y.Cornell.

PLANT PATHOLOGY--Flower Diseases. (Cont.)

Fusarium wilt of golden seal. Life history study and identification of causal organism; temperature relation; control. N.Y.Cornell.

Studies on Botrytis and Sclerotinia diseases of plants, including Botrytis diseases of peony, Botrytis blight of golden seal. N.Y.Cornell.

Diseases of the rose. An investigation of the more important diseases under glass and out of doors. Life history studies; temperature relations; control. N.Y.Cornell.

Mildew and black-spot of roses. Life history studies, temperature relations, and control. N.Y.Cornell.

Forage Crop Diseases.

Cereal and field crop disease studies. Colo.

Disease investigations with cereals and forage crops. Disease studies with forage crops. Iowa.

Forest and Shade Tree Diseases.

White pine blister rust. Conn. State.

Control of white pine blister rust. Conn. State.

Studies in white pine blister rust control. Minn.

Blister rust of conifers. Pa.

Chestnut blight--virulence studies. Conn. State.

Pruning and spraying in the control of infectious diseases of oak and other shade trees. Ohio.

Relation of environment to damping off of seedlings. Minn.

Miscellaneous Itasca dendropathological experiments. Minn.

Fruit Diseases.

Fruit disease investigations. Miss.

The brown rot disease of orchard fruits with special reference to the etiology of the disease. N.Y.Cornell.

The control of sooty mold on fruit by dusting and spraying. N.H.

Studies of fruit rotting sclerotiniae. (A) Md.



PLANT PATHOLOGY--Fruit Tree Diseases.

- Fruit tree diseases in Placer County. (Berkeley Substation) Calif.
- Fire blight. (P) Pa.
- Fire blight of pomaceous fruits and its control. Wis.
- Fire blight resistance. (P) Tenn.
- Root diseases of fruit trees. (Hudson Valley investigations) N.Y.State.
- Investigation of diseases of orchard fruits, especially apple scab, cherry leaf spot, and fire blight, in relation to control measures. (P) Wis.
- Miscellaneous canker diseases of fruit trees. Oreg.
- Fungicides. (See also ECONOMIC ENTOMOLOGY-INSECTICIDES)
- Toxic action of fungicides on parasitic fungi. (A) N.H.
- The effect of fungicides and insecticides on plants. (A) N.H.
- New insecticides and fungicides. N.Y.State.
- A study of the fundamental factors affecting the suspension, adhesiveness, toxicity, and general efficiency of copper fungicides. (A) Mass.
- Relative fungicidal value of a wide range of organic compounds. Iowa.
- Studies in disinfection, with special reference to some organic mercury compounds. N.Y.Cornell.
- Investigations with a solution of copper sulphate and ammonium carbonate in water, applied as a fertilizer and fungicide, on greenhouse plants. Oreg.
- Insecticidal and fungicidal properties of sulphur. N.Y.State.
- Preliminary studies of the possibility of sulphur or strong Bordeaux solution causing what is termed "burning" of foliage in cucurbits. Tex.
- Disinfectants for blight control work. (Talent Substation) Oreg.

PLANT PATHOLOGY--Fusarial Diseases.

The Fusarial diseases of plants.

(A) Mo.

Fusaria causing wilt in Tennessee. Morphological, culture, and pathological study of the fungi.

(A) Tenn.

Gooseberry Diseases.

Spraying gooseberries.--To secure control of gooseberry leaf spot and anthracnose by spraying.

Ill.

Grape Diseases.

Studies in grape rots.

Del.

Influence of the number of fruit buds on the quality of the vine crop and the prevalence of "waterberries" and black measles.  
(Davis Substation)

Calif.

Grass Diseases.

Downy mildew (Sclerospora graminicola) of common foxtail and corn.

Iowa.

Investigation of stripe rust of grains and grasses caused by Puccinia glumarum.

Idaho.

Rust and smut control in wheat and other cereals and grasses.--  
To investigate the life histories and characteristics of the rusts and smuts of cereal grains and of grasses; to determine their chief modes of attack, the conditions under which they are most destructive, and to establish proper methods of control.

N. Dak.

Horseradish Diseases.

Horseradish root rot.

N. J.

Lettuce Diseases.

Some bacterial diseases of lettuce.

N. Y. Cornell.

Seed bed diseases of lettuce.

(A)

Fla.

Lettuce rot.

(A)

Ariz.

Control of bottom-rot of lettuce through selection and breeding.

N. Y. Cornell.

Tipburn in lettuce.

Colo.

PLANT PATHOLOGY--Lettuce Diseases. (Cont.)

- Lettuce tipburn investigations. N.C.
- Study of so-called tipburn of lettuce. (Berkeley Substation) Calif.
- Study of the nature, cause, and control of lettuce tipburn, particularly with reference to the relation of weather, associated organisms, and fertilizers; also varietal resistance. N.Y. Cornell.
- Varietal resistance of lettuce to tipburn. N.Y. Cornell.
- A study of conditions under which lettuce tipburn occurs, selection for resistant strains of Big Boston lettuce, and selection of a better strain of New York or Iceburg which will furnish better heads in the Wilmington section. N.C.
- Investigation of downy mildew of cucumber and lettuce. (A) Mass.

Melon Diseases.

- Diseases of cucurbits. (A) Del.
- Control of downy mildew on cucurbits and other host plants. Fla.
- Downy mildew of cucurbits. (P) Ga.
- The downy mildew of cucurbits. (A) Fla.

Mosaic Diseases. (See also specific crops)

- The nature and cause of mosaic diseases of plants. Conn.State.
- A detailed study of mosaic of plants. (A) Ga.
- Transmission of the mosaic diseases.--To determine, first, by what means the mosaics and allied diseases may be transmitted, and secondly, to what extent they can be transferred from one host species to another. N.Y. Cornell.
- Mosaic disease of beans and other legumes: Nature, cause, and control. N.Y. Cornell.

Mushroom Diseases.

- Investigations of the diseases of mushrooms. (P) Pa.



PLANT PATHOLOGY--Oat Diseases. (See also Cereal Disease, General, p.244)

A study of rye and oat anthracnose ( <u>Colletotrichum cereale</u> ).	(A)	Miss.
Crown rust of oats.		Iowa.
Oat smut.		Wash.
Studies on oat smut control.		N.J.
Oat smut control.	(P)	Ohio.
Oat smut and wheat smut.		W.Va.

Onion Diseases.

To determine the nature and seriousness of the onion pink root disease; control measures, including soil treatment and selection for resistance.		N.Y. Cornell.
Studies on the control of onion smut.		N.Y. Cornell.
Experiments with <u>Rhizoctonia</u> of potato, club root of cabbage, and onion smut.		N.Y. Cornell.

Palm Diseases.

Study of the life history of <u>Graphiola</u> and the control of <u>Graphiola</u> leaf spot of palms.	(P)	Ariz.
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Pea Diseases.

Investigations of pea blight.		Wis.
Investigations of the root rot of green peas.		N.J.
Pea root rot in Delaware and its control.	(A)	Del.
Pea root rot resistance.	(P)	Md.
Rotation of crops with and without legumes as affecting diseases of garden peas.		Md.

PLANT PATHOLOGY--Peach Diseases.

Dusting for the control of peach leaf curl.

N.Y.Cornell.

Peach spraying experiments.--To determine whether Bordeaux mixture in combination with oil emulsion will control peach leaf curl and whether spraying in the spring is as effective as in the fall.

Ill.

Bacterial spot of peach.--A study of the life history of the organism, development of a spray material for control, and testing of cultural methods for control.

Ill.

Peach tree canker.

Md.

Diseases of the peach and their control, especially yellows and brown rot.

(A)

Del.

Peach "yellows".

Conn.State.

Studies on fruit diseases.--(a) Investigation of apple diseases, (b) arsenical injury of the peach.

N.J.

Pear Diseases.

Pear blight control with special emphasis on horticultural methods. Calif. (Davis Substation)

Fire blight of pear and apple. Infection experiments, study of disinfectants, resistant types.

N.Y.Cornell.

Control of core rot.

Oreg.

Pecan Diseases.

Field studies of the diseases affecting the pecan, including control measures.

Fla.

Diseases affecting the twigs, branches, and stems of young bearing pecan trees.

(A)

Fla.

Pecan scab.

Ala.

Control of pecan scab by means of sprays.

Ala.

Pecan scab and related diseases of the pecan.

Tex.

Pepper Diseases.

The disease of peppers known as "blister" (apparently bacterial)(A)

Fla.

Investigation of fruit rot of peppers.

(A)

Ga.

Identification, life history, and control of organism causing chili blight.

(A)

N.Mex.

PLANT PATHOLOGY-Plant Disease Survey.

A plant disease survey of Connecticut.

Conn.State.

Plant disease survey.--To obtain a more definite knowledge of what diseases are important in this State and to secure data on their distribution. To assist in the discovery of new diseases which may have been lately introduced into the State, and to bring to the attention of farmers, horticulturists, and others the more important plant diseases and the widespread losses they may cause and to assist in control work.

Ind.

General plant disease surveys and investigations, including greenhouse diseases, truck crop diseases, and diseases of other crops.

Mich.

Plant disease survey.

Minn.

Plant disease survey.

N.J.

North Dakota plant disease survey.

N.Dak.

Plant disease survey. Records annually, through correspondence and observations as to prevalence and severity of plant diseases throughout Oregon.

Oreg.

Plant disease survey work.

Pa.

Plant disease survey.

S.C.

Plant disease survey.

Utah.

Plant disease survey including miscellaneous diseases.

Wash.

Plum Diseases.

Leaf spot of cherry and plum and its control

Wis.

Experimental plum spraying.--To determine the comparative effectiveness of dust and liquid sprays for the control of brown rot of plums.

Minn.

Potato Diseases.

Potato diseases.

Wis.

Potato diseases. (Torrington)

Wyo.

Potato investigations. Tuber and leaf diseases. (Northwest Substation, Crookston)

Minn.

Control of foliage diseases of the potato by the use of Bordeaux mixture.

N.J.



PLANT PATHOLOGY--Potato Diseases. (Cont.)

- Investigation of tuber-borne diseases of the potato. Investigations of the value of various dust treatments, including organic mercuric compounds of seed-borne scab. (P) N.J.
- An investigation of potato diseases which attack the tuber internally, particularly a study of the organisms associated with wilt and stem end rot. (A) N.Dak.
- Virus diseases of potatoes. (A) Oreg.
- Potato disease investigations.--To determine which potato diseases are limiting factors in the production and market value of the potato crop in Indiana and to determine the effectiveness of seed disinfection and spraying as a control measure for potato diseases in the State. Ind.
- To determine the etiology and control of Michigan potato diseases, including seed treatment methods, soil treatments for potato scab investigations of Bacillus atrosepticus causing blackleg, and the development of mosaic and leaf roll free strains of potatoes. Mich.
- Potato diseases.--To compare tubers produced under vines, sprayed, with those not sprayed the preceding year; to determine the comparative value of different methods of treating tubers for controlling black scurf. Minn.
- Potato diseases.--A study of insect vectors of potato diseases. Idaho.
- Potato disease investigations, including scab, Rhizoctonia, blackleg, Mosaic, and hopper burn. Mich.
- Bacterial blight of Solanaceae. (Smith's brown rot) (A) Fla.
- Potato investigations. Spraying for early blight. (West Central Substation, Morris) Minn.
- Early blight tuber rot of the potato. (P) Me.
- Dusting tests: To compare dusting and spraying for control of late blight and other diseases of the potato. Me.
- A study of marginal leaf roll, or spindling tuber disease of potato--symptoms, transmission, and yields. N.Y.Cornell.
- To determine whether leaf roll and mosaic of the potato can be controlled by isolating the seed plat and roguing it thoroughly. N.Y.State.
- A study of methods for eliminating mosaic and leaf roll from seed potatoes by roguing and indexing. N.Y.Cornell.

PLANT PATHOLOGY--Potato Diseases. (Cont.)

Investigations of potato mosaic and leaf roll in Idaho.	(A)	Idaho.
Effect of place on mosaic and leaf roll of the potato.	(P)	N.H.
Mosaic and related diseases of the potato.	(A)	Wash.
Study of potato certification methods and potato mosaic.		Md.
A study of the heredity of resistance in potato to <u>Phytophthora infestans</u> .		N.Y.Cornell.
Rhizoctonia disease of potatoes. (Irrigation Substation)		Wash.
Studies of Rhizoctonia and mosaic diseases, and physiological studies.	(A)	Utah.
Experiments with Rhizoctonia of potato, club root of cabbage, and onion smut.		N.Y.Cornell.
A study of the relation of time, temperature, and concentrations on the killing of the sclerotia of Rhizoctonia on potatoes and the killing of potatoes in treatments (of potatoes) with mercuric chloride solutions.		N.Y.Cornell.
The potato scab.	(A)	Vt.
Physiological studies of potato scab.		N.J.
Potato scab control.		Ohio.
The use of elemental sulphur for the control of potato scab.		N.J.
Potato spraying for the control of tipburn.		Iowa.
Potato diseases, including potato wilt and late blight.		Fla.
The fusarium wilt of potatoes.	(A)	Pa.
Verticillium wilt of potatoes.	(A)	Oreg.
The potato wart disease and its control.		Pa.
Relation of external conditions to infection and development of the potato wart disease caused by chrysophlyctis.		N.Y. Cornell.
Spindling sprout disease of the potato tuber.	(A)	Md.
A study of potato spindle tuber and combinations of spindle tuber with other degeneration diseases.	(A)	Nebr.



PLANT PATHOLOGY--Potato Diseases. (Cont.)

- Tipburn of the potato and other plants. (A) Vt.
- Study of yellow dwarf disease of potatoes. N.Y.Cornell.
- Degenerative diseases of potatoes. Ohio.
- Degeneration diseases of potatoes, their nature and control.(A ) Mont.
- Degeneration diseases of the potato. Identification, transmission, survey, and control, including mild mosaic, crinkle mosaic, rugose mosaic, leaf roll, streak, spindling tuber diseases, unmottled curly dwarf, and combinations of these. (A) Me.
- Degenerative diseases of potatoes. An attempt to determine the possibility of detecting the presence of mosaic, leaf roll, and other foliage degenerative diseases by the inspection of the seed. Vt.
- Hollow heart of potatoes. Minn.
- General methods of potato disease control. Oreg.
- The control of seed-borne diseases of the potato. (P) Nebr.

Raspberry Diseases.

- Raspberry diseases. N.Y.State
- Investigation of raspberry diseases. Mich.
- Diseases of small fruits and methods of control, especially raspberry diseases. Minn.
- Spraying for control of the anthracnose of raspberries (at Peoria). Ill.
- Control of crown gall of raspberries.--To determine a practical method of raspberry crown gall<sup>control</sup> through the application of various germicides applied to the soil in the plantation. Ill.
- Raspberry mosaic. Minn.
- Relation of insects to mosaic disease of raspberries. (Hudson Valley investigations) N.Y.State
- Effect of coastal and soil conditions on raspberry diseases. R.I.



PLANT PATHOLOGY--Rhubarb Diseases.

A rhubarb disease.

Pa.

Rice Disease.

Control of straighthead or blight of the rice plant.

Ark.

A study of the stem rot of rice caused by Sclerotinia oryzae  
Catt.

(A)

Ark.

Root Knot.

Control of nematode root knot.

(A)

Fla.

Investigations of nematode control

N.C.

Root knot nematode control.

(P)

Tenn.

Rotation studies to control nematodes.

(P)

Ala.

Investigation of root knot nematode and its relation to various  
host plants.

Ga.

Alfalfa nematode studies.

Colo.

Control of root knot nematode by application of calcium cyanide in  
the soil (Citrus Substation, Riverside)

Calif.

Root Rots.

Root rot investigations. (Hood River Substation)

Oreg.

Root rot diseases of New Mexico crops.--To obtain information as  
to cause, nature, and control of these diseases.

N.Mex.

Texas root rot investigations.--To learn the cause of Texas root  
rot of cotton, sweet potato, alfalfa, and cowpeas.

(A)

Tex.

Rusts.

Rust investigations.--To determine through field observations and  
greenhouse and field infection experiments the life history of  
certain rusts and to contribute to the knowledge of biological  
forms and the influence of the host on the morphology of the rust.

(A)

Ind.

Dusting for control of cereal rusts.

N.Y. Cornell.

The rusts of Connecticut.

Conn.State.

PLANT PATHOLOGY--Rye Diseases.

A study of rye and oat anthracnose (Collectotrichum cereale). (A) Miss.

Sclerotinia Diseases.

Studies on Botrytis and Sclerotinia diseases of plants, including Botrytis diseases of peony, Botrytis blight of golden seal. N.Y.Cornell.

Sclerotium wilt diseases. A study of the causative agent and of the host plants of the fungus, the effect of various substances in the soil on the fungus, and a study of its life history. (A) La.

Seeds as Disease Carriers, Treatment, etc. (See also diseases of specific crops

Seed-borne plant diseases. N.Y.State.

Control of seed-borne infections. Effect of various treatments on the viability of seed. (A) N.C.

The influence of environmental conditions on the transmission and development of seed-borne diseases, including the potato. (A) Nebr.

Small Fruits- Diseases of.

Diseases of small fruits and methods of control, especially raspberry diseases. Minn.

Cane fruit disease investigations with special reference to anthracnose and crown gall. Wis.

A study of mosaic of brambles. (A) Oreg.

Fungus and bacterial diseases of brambles. Oreg.

Virus diseases of bramble fruits. (A) Oreg.

Solanaceae Diseases.

Bacterial blight of Solanaceae. (A) Fla.

Sorghum Diseases.

Bacterial leaf spot of sorghum and corn. Iowa.

Smuts of sorghum. Minn.

Soy Bean Diseases.

Diseases of the soy bean and cowpea, with special reference to a bacterial blight, a wilt, and a mosaic. (A) Del.

PLANT PATHOLOGY--Soy Bean Diseases.(Cont.)

A bacterial disease of soy beans. A study of a little known bacterial disease of soy beans with special reference to cause, symptoms, dissemination, cultural, and inoculation studies, relation to leaf spot of velvet beans and other legumes, and means of prevention and control (A) N.C.

Spinach Diseases.

Spinach diseases. Tex.

Strawberry Diseases.

Strawberry leaf spot or "rust." Tenn.

Strawberries: Control of leaf spot by spraying. Miss.

Strawberry leaf scorch. Life history, isolation, culture, pathogenicity, and causal organism. (A) N.C.

Strawberry root rot - prevalence, cause, and control. N.Y.Cornell.

Sugar Beet Diseases.

Sugar beet diseases. Utah.

Sugar beet investigations. The control of black root. Mich.

The entomology and parasitology of curly leaf of sugar beets.  
A study of the internal anatomy and histology of nonvirulent and virulent leafhoppers. (A) Calif.

Sugar Cane Diseases.

Cane disease investigations. Miss.

A study of sugar cane mosaic, root rot, and other important cane diseases, as to their life history, dissemination, and possible methods of control, including immunity studies with mosaic. (A) La.

Sunflower Diseases.

Sunflower rust. The influence of fertilizers on the development of sunflower rust and the amount of resultant injury. Minn.

An investigation of a disease of cultivated sunflowers, known as sunflower wilt. (A) Mont.

Miscellaneous diseases of sunflowers. Minn.



PLANT PATHOLOGY--Sweet Potato Diseases.

- Sweet potato black rot. Ala.
- Disease resistance in sweet potatoes to stem rot and black rot. (A) Ala.
- Investigation of sweet potato diseases, including stem rot, scurf, and pox. (P) N.J.
- Diseases of the sweet potato and their control, especially "pox". (A) Del.
- Mosaic of sweet potatoes. Ark.
- Sweet potato disinfection studies, for the control of seed-borne fungi that cause heavy losses in the field. N.C.
- Sweet potato diseases, with special reference to the prevention of field infection. N.C.
- Sweet potato diseases, with special reference to their causal organisms. (A) N.C.
- Sweet potato diseases, with special reference to limiting factors of fungus growth. (A) N.C.
- Sweet potato diseases in storage and transit, with special reference to their control with chemical treatment. (P) N.C.

Tobacco Diseases.

- Field and laboratory studies of tobacco diseases. (Tobacco Substation) Fla.
- A study of leaf spot disease of tobacco. Wis.
- Sources of infection of tobacco plant beds with the bacterial leaf spot diseases, angular leaf spot and wildfire, and a study to control these diseases. (P) Ky.
- The sources of infection of tobacco plant beds with the bacterial leaf spot diseases. (A) Ky.
- A study of a new root rot disease of tobacco. (P) Ky.
- A study of a root rot disease of tobacco. Its distribution, identification and pathogenicity of the causal organisms. Varietal resistance. (A) Ky.
- Study of root rot of tobacco caused by Thielavia. Wis.

PLANT PATHOLOGY--Tobacco Diseases.(Cont.)

Studies of Theilavia basicola, causing tobacco root rot.

A study of the perfect stage.

Conn.State

Effect of manuring and continuous cropping without manure on root rot of tobacco.

Ky.

A study of tobacco root rot in Georgia.

(A)

Ga.

A study of so-called tobacco sickness.--Tobacco black root rot.

(A)

Mass.

Black root rot of tobacco--relation of soil reaction.

(Windsor Tobacco Substation)

Conn.State.

Investigation of the brown root rot of tobacco.

Wis.

Investigation of tobacco brown root rot.

(A)

Mass.

Tobacco sick soils (brown root rot.) (Windsor Tobacco Substation) Conn.State

Tobacco investigations. The nature of the cause of mosaic diseases.

Wis.

Investigations of "must" of tobacco.

Wis.

Investigation of the "shed-burn" of tobacco.

Wis.

Wildfire disease of tobacco.

Wis.

Tobacco frenching.

(A)

N.C.

Control of tobacco wildfire and blackfire.

(P)

Tenn.

Blackfire and wildfire diseases of tobacco. (Chatham Substation)

Va.

Investigation of the Fusarium wilt of tobacco.

Wis.

Seed bed control of tobacco diseases.

Md.

Tobacco disease survey of the United States.

Wis.

PLANT PATHOLOGY--Tomato Diseases.

Tomato diseases.		Tex.
Tomato diseases.		W.Va.
Tomato disease investigations.		Miss.
Relation of the health of the host plant to infection by leaf spot fungi, with special reference to Septoria leaf spots of celery and tomato.		N.Y.Cornell.
Tomato blight.	(A)	Md.
Tomato blight and related diseases.	(A)	Wash.
Experiments in the control of the western yellow tomato blight by breeding and selection.		Idaho.
Studies on foot rot of tomatoes.		Del.
Tomato mosaic.	(P)	Md.
Tomato mosaic control.		Ind.
Canning crop diseases, especially Rhizoctonia on the tomato and methods for its control. Diseases occurring in hotbeds with methods for their treatment.		Utah.
Tomato root knot control.		Md.
Effect of various fertilizer treatments and of soil amendments on prevalence of nail head rust in tomatoes.		Fla.
Tomato wilt.	(P)	Md.
Tomato wilt. Testing of varieties as to their resistance and the breeding and selection for wilt resistance. Also the effect of environment and other factors on the severity of the wilt disease.	(A)	La.
Studies on tomato wilt caused by <u>Fusarium lycopersici</u> Sacc.		N.Y.Cornell.
The Fusarium wilt of tomatoes. Method of infection, factors governing infection, and relation of cell structure of host to resistance, and also to develop resistant varieties of tomatoes.	(A)	Ga.



PLANT PATHOLOGY--Tomato Diseases.(Contd.)

Tomato disease investigations.--To determine (a) which tomato diseases, other than the Fusarium wilt and the Septoria leaf spot, are limiting factors in the production and market value of the tomato crop in Indiana; (b), whether or not certain disease-producing fungi, especially the form causing Septoria leaf spot, are carried with the seed; (c) the source of the primary infection of Septoria leaf spot whether due to infestation of seed, seed bed and hotbed or field soil, with special reference to origin of the disease in the field (diseased or contaminated transplants, overwintering of fungus in the field, or spread from neighboring fields), the mode of spread of Septoria leaf spot in the field (rain water, surface drainage water, wind, cultural practices), and the possibility of control of Septoria leaf spot. Ind.

Seed bed diseases of tomatoes. (A) Fla.

Controlling foliage diseases of the tomato with dusts and sprays. N.J.

Vanilla Diseases.

The vanilla root disease.-- To isolate the causal organism and investigate the various methods to control the root disease of vanilla. Porto Rico.

Vegetable Diseases; General.

Diseases of greenhouse vegetables. Ohio.

Control of diseases of greenhouse vegetables. Mass.

Miscellaneous truck crop diseases. Field observations on various crop diseases. Minn.

Vegetable diseases in Porto Rico. Control of various diseases of vegetable and truck crops with special reference to leaf spots caused by fungi of the genera Cercospora and Helminthosporium. Porto Rico

Control of vegetable diseases. Ill.

The relation of Dipterous insects to the spread and development of soft rot of vegetables. Minn.

Studies of diseases of certain truck crops caused by Sclerotinia and Botrytis. Pa.

Truck crop disease studies. Colo.

PLANT PATHOLOGY--Walnut Diseases.

Walnut crown rot.--An investigation of its cause and the factors influencing its occurrence. (Citrus Substation, Riverside) Calif.

Watermelon Diseases.

Diseases of the watermelon and their control in Texas. --To determine (a) the cause of blighting and its relationship with anthracnose, (b) The cause of blossom-end rot, the life history of Colletotrichum lagenarium and other organisms, and (c) the pathology, morphology, physiology, and cytology of affected plants. (A)

Wheat Diseases. (See also Cereal Diseases, General p.244.)

Study of certain wheat diseases as related to the deterioration of wheat and the reduction in yield. (A) Tenn.

An investigation on seed and seedling diseases of wheat, particularly as associated with Fusarial and Helminthosporial blights. (A) N.Dak.

The foot rot of wheat and other cereals. (A) Wash.

Corn root rot, its control and relation to wheat scab. Wis.

Black chaff of wheat. Minn.

Leaf rust of wheat and related grass.--Heteroecious culture work (a) to determine the grass and aecial host relationships within the species as a whole, (b) to study the extent to which strains are limited by the aecial hosts, (c) to discover, if possible, the aecial host or hosts for the leaf rust of wheat. (A) Ind.

Black stem rust of wheat. (A) Va.

An experiment with rusted Marquis wheat harvested at different stages.--To determine the effect of harvesting rusted grain before maturity. (Dickinson Substation) N.Dak.

Wheat rust control by the selection of strains more resistant to rust than the varieties now grown. N.C.

To determine the resistance of wheat varieties to scab. Minn.

Loose smut of wheat. (A) Va.

Resistant varieties and environmental factors influencing the severity and amount of loose smut in wheat. N.Y.Cornell

Oat smut and wheat smut. W.Va.



PLANT PATHOLOGY--Wheat Diseases. (Contd.)

Wheat smut. Methods of control. Seed treatment.--To determine the cause of, and possible methods of controlling various forms of smut explosions and the possibility of catching and destroying a large percentage of the smut at the threshing machine in an effort to reduce the amount of soil contamination.	Wash.
Smut nursery: Smut resistant winter wheats in uniform nursery. (Burns Substation)	Oreg.
The relation of soil moisture content to bunt or stinking smut infection in wheat. (A)	Idaho.
Control of stinking smut of wheat.	Mich.
Comparison of copper carbonate dust and formaldehyde ridding seed wheat of bunt.	Md.
Control of take-all of wheat.	N.C.
Differential reaction of strains within a wheat variety to physiological forms of <u>Puccinia graminis tritici</u> . (A)	Nebr.
Yellowberry in wheat. The cause of yellowberry in Turkey Red Wheat in the Columbia Basin, and means for its control.	Oreg.
Diseases and fungi which carry over winter in wheat.	Md.
<u>Miscellaneous:</u>	
The relation of air and soil conditions to infection and progress of certain plant diseases.	Wis.
Study of soil temperature and climatic conditions in their relation to the prevalence of important plant diseases in Texas. (A)	Tex.
Effect of soil management on plant diseases.	R.I.
The effect of Ammo-Phos on the development of plant diseases.	Minn.
The effect of cyanamid on the development of plant diseases.	Minn.
Studies in plant metabolism and growth.--Effect of nightly illumination on the control of seedling diseases.	Minn.
Miscellaneous plant disease investigation. Miscellaneous plant diseases.	Kans.
Miscellaneous pathological investigations.	Oreg.
Miscellaneous plant pathology studies	Ariz.



PLANT PATHOLOGY--Miscellaneous. (Cont.)

Miscellaneous plant pathology work.	W.Va.
Diseases of perishable crops in transit and methods of control.	Tex.
New Fungicides, their relative efficiency and practicability as compared with fungicides now commonly employed. (P)	Tenn.
Minor investigations in plant pathology. Routine diagnosis from specimens and answers to inquiries. (Berkeley Substation)	Calif.
Notes on New York plant diseases.	N.Y.State
Record of materials sent in. (Berkeley Substation)	Calif.
Insect pests and plant diseases and their control. (Everglades Substation, Belle Glade)	Fla.
Administration and direction of work of the office, laboratories, and field.	N. Dak.

ECONOMIC ZOOLOGY.

(See also VETERINARY MEDICINE--Parasites, p.378, and ECONOMIC ENTOMOLOGY--Earthworms, p.283, fleas, p.284, mosquitoes, p.290, and ticks p. 297)

Birds.

Life histories of birds of eastern North America.	N.Y.Cornell
The migration of birds.	N.Y.Cornell
Methods of attracting birds.	N.Y.Cornell
An ecological study of the ruffed grouse.	N.Y.Cornell
The artificial propagation of the canvasback, the wood duck, the pin tail and teal, the bobwhite, the California quail, the golden and Amherst pheasants, the ruffed grouse, and other ornamental waterfowl and game birds.	N.Y.Cornell
An ecological study of the birds of a Porto Rican lagoon.	N.Y.Cornell
Bird banding.	Mich.
The banding of birds and bats.	N.Y.Cornell

Investigation and control of injurious insects, mammals, and birds. Nebr.

ECONOMIC ZOOLOGY--Crawfish.

A systematic and biologic study of the crawfish of Mississippi, with special reference to species injurious to agriculture, and the means of controlling them. (A) Miss.

Fish.

Cultural methods for the commercial propagation of catfish. N.Y. Cornell.

Studies on the nutrition of trout. N.Y. Cornell.

Selective breeding for disease resistance in brook trout. N.Y. Cornell.

Gyrodactyliasis of trout and its control. N.Y. Cornell.

Pond fertilization for the production of fish food. N.Y. Cornell.

Nematodes. (See PLANT PATHOLOGY--Root Knot.)

Oysters.

Scientific oyster preparation: (a) Studies on the distribution and behavior of oyster larvae, (b) studies on the food of oysters, and (c) investigations of the biology and means of control of oyster drills. N.J.

Studies of the chemical and biological changes occurring in oysters during floating. N.J.

Rodents and Other Mammals.

Rodent investigations. A study of the distribution, biology, injury, and means of control of the more important rodent pests of Nebraska, including house rats and mice, pocket gophers, prairie dogs, ground squirrels, and kangaroo rats. Nebr.

Life history of certain rodents and their effect upon grazing ranges, with special reference to the jack rabbit (Lepus alleni and L. californicus) and the small ground squirrel (Citellus tereticaudus) (A) Ariz.

Injurious mammal investigations. Life histories of and control measures for injurious mammals, especially the mole and pocket gopher. Kans.

Controlling rodent pests in Indiana. Ind.

Campaign against injurious field rodents; Work against the pocket gopher. Minn.

The banding of birds and bats. N.Y. Cornell.

Rabbit feeding. Mont.



ECONOMIC ZOOLOGY--Miscellaneous.

Iowa snakes; their identification, distribution, habits, and relation to agriculture. Iowa.

The biology of marine borers: (a) Studies of the spawning of marine borers and the behavior of their larvae, (b) studies of the influence of various types of wood upon shell character of Teredo, (c) parasites and biological enemies of marine borers. N.J.

Poisonous arthropods. Ark.

Studies in Arthropod parasites of man and domestic animals and their relation to disease dissemination. N.Y.Cornell.

Biological survey.--To make a survey of and collect biological and economic data upon native and introduced plants and animals of the State, their distribution, habits, and agricultural importance. N.Dak.

The zoological geography of Washington, including service work. Wash.

Life history study of the Necator suilla and its possible relation to the problem of human ankylostomiasis in Porto Rico. Porto Rico.

ECONOMIC ENTOMOLOGY.

Alfalfa Insects. (See also specific insects and Field Crop Insects.)

Insects injurious to alfalfa. Study of various hay worms and of the pea aphid. Kans.

The chalcis fly in alfalfa seed. (P) Utah.

Alfalfa nematode control. Rotations. Resistant crops and varieties. (Hermiston Substation) Oreg.

The alfalfa weevil Minn.

Insects injurious to alfalfa. Life history and diffusion of the alfalfa weevil (Hypera postica) and introduction and spread of the parasite Bathyplectis curculionis. Nev.

Alfalfa weevil: Study of climatic conditions affecting control; experiments in control; breeding and liberation of parasites. Idaho.



ECONOMIC ENTOMOLOGY--Ants.

Ants of Colorado in their relation to plant lice. Colo.

Aphids. (See also insects of specific plants.)

Study of aphids. Ohio.

Investigations on plant lice. (A) Colo.

Ecological and life history studies of aphididae, with especial reference to the alternate food plants of migratory species. (A) Me.

An aphid study to determine the factors which influence the formation of wings. (A) Tex.

Plant lice and the apple maggot. Minn.

The woolly aphis. (A) Tenn.

Ants of Colorado in their relation to plant lice. Colo.

Apple Insects. (See also specific insects.)

Ecological investigations of grape and apple insects. N.Y.State.

An investigation of aphids injurious to apples: (a) Field spray tests and (b) the biology and habits of aphids as influenced by atmospheric conditions and their effect on the prevalence and activities. A study of host relationship. Oreg.

Apple plant lice. (A) Md.

Biology and control of the apple infesting aphids. (P) W.Va.

Control of apple aphids. W.Va.

Control of apple red bugs and aphids by dusting. N.Y.State.

Control of apple and peach tree borers. W.Va.

Round headed apple borer. (Hudson Valley investigations) N.Y.State.

Rose leaf hopper as an apple pest. N.Y.State

A study of the leaf rollers injurious to the fruit and foliage of apple in Pennsylvania. Pa.

ECONOMIC ENTOMOLOGY--Apple Insects. (Cont.)

- Bionomics and control of the apple leaf skeletonizer  
(Canarsia hammondi) and the bearing of the data obtained  
on other related species. (A) Md.
- The codling moth; lesser apple worm, and other related apple  
worms.--To determine relative normal abundance and responsibility  
for fruit injury of various species of fruit worms in different  
parts of the State, and to secure accurate and definite data on  
the comparative life and seasonal history of the various species  
correlated with weather and the relation of the above data to the  
control of the various species. Ind.
- Modifications in control of curculio and apple maggot required by  
coastal conditions. R.I.
- Plant lice and the apple maggot. Minn.
- Orchard spraying for control of the apple maggot. Minn.
- The life history, habits, and control of the plum curculio on the  
apple. Conn.State.
- Blister mite control on apples and pears. Observations on life  
history and habits. Time of application and various combinations and  
strengths of insecticides for its control.(Hood River Substation) Oreg.
- Dusting v. spraying.--To determine the efficiency of dust methods of  
control of insects and fungus diseases of the apple. Ind.
- Comparison of dusting and spraying for the control of insects and  
diseases on the apple. W.Va.
- Bean Insects (See also specific insects and Truck Crop Insects.)
- Insect pests of beans. (Berkeley Substation) Calif.
- Studies of the bean jassid (Empoasca mali). (A) Fla.
- Mexican bean leaf beetle (Epilachna corrupta). Spread, life  
history, habits, food preferences, natural enemies, control. N.C.
- The Mexican bean beetle. A study of new insecticides for its control. Tenn.
- Biology and control of the Mexican bean beetle. (P) S.C.
- Belted bean beetle.--To study the life history of the belted bean  
beetle (Diaboetica baltata LeComte) and to develop methods of  
control, including feeding habits, character of injury produced,  
effect of climate, disposition, and natural and artificial control.  
(A) Ala.
- The Florida flower thrips on citrus, peanuts, beans, eggplants, and  
forage crops. (A) Fla.



ECONOMIC ENTOMOLOGY--Bees.

Selecting breeding of bees.	(P)	Wyo.
The artificial fertilization of queen bees.	(A)	Okla.
To demonstrate the possibility of commercial queen raising in Minnesota, its conditions, possibilities, and cost.		Minn.
Methods of controlling mating of queen bees.		Minn.
The egg-laying capacity of queens.		Minn.
A comparison of Carniolan and Italian colonies for Minnesota.		Minn.
Beekeeping.		Ark.
Miscellaneous investigations pertaining to beekeeping. (Davis Substation)		Calif.
Beekeeping studies.--To determine the practical value and possible profits from small apiaries in the Virgin Islands.		Virgin Islands.
Apicultural investigations.		N.J.
The distribution of beekeeping regions according to soil and climatic factors.		N.Y. Cornell.
Meteorological influence on honey production.		Iowa.
The production of honey at high altitudes.		Wyo.
The relation of tongue length and body size to the production of honey.		Iowa.
Time and labor factors involved in gathering, ripening, and storing honey by honey bees.		Iowa.
The availability of various carbohydrates by the honey bee.		N.Y. Cornell.
Use of invert sugar in the winter feeding of bees.		Minn.
A study of pollen substitutes.		Minn.
Gathering and storing natural pollen through the winter for use in the spring.		Minn.
Summer and winter results with bees.		Minn.
The behavior of honey bees in winter.		N.Y. Cornell.
Wintering of bees.		Wyo.
Winter protection of bees.	(P)	Md.



ECONOMIC ENTOMOLOGY--Bees. (Cont.)

- Methods of wintering bees; relation of physical characters of bees to honey production and study of honey plants in Kansas. Kans.
- Wintering bees.--To determine the best method of wintering bees under North Carolina conditions. N.C.
- Factors which involve successful wintering of bees in Wisconsin.(P) Wis.
- Wintering colonies on natural honey, honey dew and honey, honey dew and sugar syrup, with pollen and on pure honey dew. Minn.
- Winter consumption, mortality, spring development, honey crop of bees, bees wintered in cellars, in packing cases outside and double-walled hives outside. Minn.
- Experimental apiaries. Studies of regional bee control. Tex.
- Maintenance of a model apiary. Minn.
- Bee and honey survey of Minnesota. Minn.
- Honey plants in Iowa. Iowa.
- A survey of the honey producing plants of the State. N.C.
- A study of the actual benefit derived from bees as pollinators of plants. Minn.
- Does spraying orchards kill bees? Mass.
- The arsenical poisoning of bees. Wash.
- Bee disease inspection. Minn.
- The factors influencing the distribution of European foulbrood.N.Y.Cornell
- American foulbrood control: (a) Disinfection of foulbrood combs, (b) extracting combs as carriers, (c) wild honey bees as carriers and their elimination, (d) the possibility of immunizing bees to American foulbrood. (P) Wyo.
- Control of foulbrood of bees. Conn.State
- Foulbrood inspection. Tex.
- Inspection of apiaries. Conn. State.
- Causes of mortality of package bees in shipment. Minn.

ECONOMIC ENTOMOLOGY--Beetle. (See also Weevils and specific crop insects.)

A study of an Asiatic beetle, Anomala orientalis. Corn. State.

Blister beetles (Meloidae) of South Dakota. (A) S. Dak.

Green June beetle or fig eater (Cotinus mutabilis) (P) Ariz.

Eleodes beetles: Life cycle studies of Eleodes hispilabris; experiments in spring poisoning of adults; taxonomy of eleodes beetles of the State. Idaho.

Insects injurious to roots of staple crops. Studies of May beetles, Lachnosterna scarabaeidae, wireworms, and false wireworms. Kans.

The biology of the Parnidae. N.Y. Cornell.

Studies of the Syneta leaf beetle. Oreg.

White grub investigations. Iowa.

Blueberry Insects.

Insects affecting the blueberry. (R) Me.

Cabbage Insects. (See also specific insects and Truck Crop Insects.)

Cabbage insects. N.Y. State.

Susceptibility of cabbage aphids and caterpillars to dusting. N.Y. State.

The cabbage maggot- Phorbia brassicae; life history, habits, and methods of control on cruciferous crops. Pa.

Experiments with baits attractive to the cabbage maggot fly. Conn. State.

Carrot Insects.

Studies on the carrot rust fly. N.Y. State.

Cherry Insects.

Investigation of the cherry aphid and its relation to the growing of cherries in Door County. Wis.

Chinch Bugs.

An investigation of methods for controlling the chinch bug. Mo.

ECONOMIC ENTOMOLOGY--Citrus Insects. (See also specific insects)

The green citrus aphid (Aphis pomi). Its nativity, life history, host plants, and control (A) Fla.

The Florida flower thrips on citrus, peanuts, beans, eggplants, and forage crops. (A) Fla.

Orange tortrix investigations.--A study of the orange worms, their life histories, habits, economic importance, and control. (Citrus Substation, Riverside) Calif.

The larger plant bugs on citrus, pecan, and truck crops. (A) Fla.

Control of ants on citrus fruits. Tex.

Clover Insects. (See also specific insects and Field Crop Insects.)

A study of the life history, habits, and methods of control of certain clover pests, especially the clover seed midge. N.Y.Cornell.

A biologic study of the clover seed caterpillar with a consideration of the methods of control. N.Y.Cornell

Codling Moth.

Studies of the life history of the codling moth. (Parma Substation) Idaho

Codling moth biology, ecology, and control. (P) Kans.

A study of the life cycle of the codling moth and the best time and method of applying insecticides for controlling it.--To ascertain if it is possible to improve the present methods of controlling the codling moth. Mo.

Codling moth studies. Life history study as a basis of an effective spraying program for control. (Hood River Substation) Oreg.

Study of the number of broods of the codling moth to determine the presence and importance of the second brood and whether it is necessary to spray for it. Mass.

Bionomics and control of the codling moth in Delaware. (P) Del.

The codling moth.--Ecology and control. Improved spray practices, new combination sprays and better technique. Oreg.

Codling moth control. Colo.

Codling moth control. Va.



ECONOMIC ENTOMOLOGY--Codling Moth. (Cont.)

To set the optimum time for the August spray directed against the codling moth. Mich.

To determine the most effective and economic methods of codling moth control, based on life history studies. (A) N.Mex.

Codling moth control and arsenical residue investigations. (Berkeley Substation) Calif.

Control of codling moth in the Great Lakes region. N.Y.State

Corn Insects. (See also specific insects and Field Crop Insects.)

Investigation of the ecology and control of the corn bill bug. (A) S.C.

Corn stalk borers. (P) Iowa.

Life history of the European corn borer in New Hampshire. (A) N.H.

The European corn borer. Life history and control. Ohio.

Corn breeding in relation to the European corn corer infestation and control in Ohio. (P) Ohio.

Investigation of the susceptibility to European corn borer attack of varieties of sweet corn as influenced by time of planting. Mass.

Control of the European corn borer. Conn.State.

Native corn borers of Iowa. Iowa.

Biology and control of the corn earworm. (P) Md.

The corn earworm. Life history and control. Ohio.

Corn earworm investigations. Studies of oviposition and corn varietal resistance. Kans.

Seasonal history of the corn earworm. Iowa.

The corn earworm.--A study of varietal resistance to this insect. N.C.

Plant louse investigations. The corn leaf louse. (A) Okla.

Bionomics and control of the corn root aphid (Aphis mardiradicis) (A) Md.

ECONOMIC ENTOMOLOGY--Corn Insects. (Cont.)

- A study of the corn rootworm.--To determine the efficiency of rotation and repellants in the control of this insect. N.C.
- Biology of the southern corn rootworm (Diabrotica Duodecimpunctata). (A) Ark.
- Western corn rootworm.--A study of the life history and possible new methods of control of this species. Iowa.
- Biology and control of the corn weevil. (A) S.C.

Cotton Insects. (See also specific insects and Field Crop Insects)

- The ecology of cotton insects with special reference to competition for food and interrelation. (A) Ark.
- Biological and ecological studies for the control of cotton aphid (Aphis gossypii Glover). (P) Miss.
- Cotton Aphid.--To study the ecology of the cotton aphid and to develop methods of control, including life history, host plants, and natural and artificial control. (A) Ala.
- Cotton pests. The boll weevil. Okla.
- Cotton insect investigations.--The boll weevil. Tex.
- Seasonal history of the cotton boll weevil in Arkansas. (A) Ark.
- A study of the influence of different factors on the hibernation of the boll weevil. S.C.
- A study of the hibernation of the boll weevil under Georgia conditions. (P) Ga.
- Hibernation and dispersion of the cotton boll weevil in Tennessee. (A) Tenn.
- Dispersal of the cotton boll weevil. (A) Ark.
- Methods of controlling the boll weevil. Ga.
- Control of cotton insects. -- The boll weevil. Fla.
- Boll weevil poisoning. (South Mississippi Substation) Miss.
- A study of the ingestion of poison by the cotton boll weevil. (A) Tex.
- Dusting as a means of boll weevil control. S.C.

ECONOMIC ENTOMOLOGY--Cotton Insects.(Cont.)

- Dusting cotton for cotton boll weevil control. Ala.
- Boll weevil control. Tests of calcium arsenate, both as a dust and spray, as well as mixed with molasses and applied by hand.  
(Holly Springs and Raymond Substations) Miss.
- Comparative efficiency of calcium arsenate dust, calcium arsenate molasses mixtures, and other liquid poisons for boll weevil control in the cotton fields in different sections of South Carolina. S.C.
- The Arizona (or Thurberia) boll weevil. Ariz.
- Biology of the Thurberia bollworm (Thurberiphaga catalina). Life history and relation to cultivated cotton, including also the Arizona pink bollworm. (A) Ariz.
- A study of the life history of the native Arizona cotton boll weevil on cultivated cotton. (P) Ariz.
- Preliminary studies on pink bollworm control.--To discover, if possible, a successful and practical method of controlling the pink bollworm in cotton. Virgin Islands.
- Life history and habits of a cotton leaf bug. (A) Ark.
- Life history of the cotton hopper and its control. Tex.
- Cotton red spider control.--To determine control measures for the red spider (Tetranychus bimaculatus Harvey) on cotton best suited to Arkansas conditions. Ark.
- Field tests with various makes and kinds of machines for applying poison to cotton. S.C.

Cranberry Insects. (See also specific insects and Fruit Insects.)

- Insect pests of the cranberry. Wash.
- Study of injurious and beneficial insects affecting the cranberry. Mass.

Crickets.

- Distribution, life history, economic importance, natural enemies, and control of the common field cricket (Gryllus assimilis Fab.) (A) S.Dak.
- Life habits and control of the field cricket, Gryllus assimilis Fab. N.Dak.
- Snowy tree crickets.--Studies of their biology and control on prune trees in the Boise Valley. Idaho.
- Bionomics for Iowa tree crickets. Iowa.



ECONOMIC ENTOMOLOGY--Cucumber Insects.

- Cucumber insects. (Long Island vegetable research farm) N.Y.State.  
Biology of the striped cucumber beetle (Diabrotica vittata)(A) Ark.  
Control of the striped cucumber beetle (Diabrotica vittata). Ark.  
Comparison of dusts and sprays for controlling the striped cucumber beetle. Ill.

Currant Insects.

- The biology and control of the currant aphid (Myzus ribis). N.Y.Cornell.  
Life history of the imported currant worm. Conn. State.

Cutworms.

- The life history of several common cutworms. (A) Nebr.  
Cutworms: Taxonomy study of cutworms of Idaho. Idaho  
Life history studies of cutworms, particularly the pale western cutworm. (A) Mont.

Earthworms.

- Earthworms and their effect on soils. Mont.

Eggplant Insects.

- The Florida flower thrips on citrus, peanuts, beans, eggplants, and forage crops. (A) Fla.  
Comparison of dusts and sprays for controlling insect pests on eggplants. Ill.

Field Crop Insects.

- Field crop insects of southern Kansas. Life histories of kafir ant, seed corn maggot, and certain sorghum infesting insects. Kans.  
Insects affecting field and vegetable crops. (P) Me.  
Cutworms affecting field and garden crops. (P) Me.

ECONOMIC ENTOMOLOGY--Fleas.

A biological and systematic study of the Siphonaptera (fleas). N.Y. Cornell.

Forage Crop Insects.

The Florida flower thrips on citrus, peanuts, beans, eggplants, and  
forage crops. (A) Fla.

Forest Insects.

Life history, habits, and control of the imported birch leaf miner,  
Fenusa pumila Klug. Conn. State.

Bionomics of the birch leaf skeletonizer, Bucculatrix canadiensisella.  
Conn. State.

A detailed study of the distribution, injuries, life history, and  
habits of the European elm scale, with special reference to its  
control. N.Y. Cornell

The biology of the European elm scale. (Gossyparia spuria) N.Y. Cornell.

The life history and control of the hickory gall aphid. N.Y. State.

Life history and control of the white pine weevil in New Hamp-  
shire. (P) N.H.

Jack pine insects.--(a) Jack pine sawfly, Neodiprion bankiana,  
(b) spruce bud worm of jack pine. Minn.

The spruce bud worm, Tertrix fumiferana. Minn.

The biology and control of the spruce gall louse (Chermes abietis)  
N.Y. Cornell.

Effect of physical factors upon insects in freshly cut logs. Minn.

Fruit Insects.

Orchard insects. Ark.

Orchard insect investigations.--To adapt present knowledge and to  
discover better methods of effecting the control of insect species  
as they become sufficiently prominent to merit attention. N.J.

Control of fruit insects. Mich.

Investigations and demonstrations in the control of insects,  
attacking deciduous fruit trees in California. (Berkeley Sub-  
station) Calif.

ECONOMIC ENTOMOLOGY--Fruit Insects. (Cont.)

The fruit tree leaf roller. Mont.

Oriental fruit moth.--To study the life history of the oriental fruit moth (Laspeyresia molesta Busch) and to develop methods of control. (A) Ala.

An investigation of the life history, habits, and methods of control of the oriental fruit moth (Laspeyresia molesta Busch). Pa.

Insects affecting Maine fruits. (P) Me.

Insect pests of brambles. A study of the insect pests of brambles, with special reference to those that may be responsible for the transmission of virus diseases. Oreg.

Gooseberry Insects.

The gooseberry root borer. Oreg.

Grape Insects. (See also specific insects and Fruit Insects.)

Ecological investigations of grape and apple insects. N.Y.State

Control of the grapeberry moth. N.Y.State

Control of (a) the peach tree borer, (b) the grape leafhopper, (c) the grapeberry moth, and (d) the pear psylla. Mich.

A study of the bionomics and control of the grape leafhopper (Erythroneura comes) (P) Del.

Control of grape leafhopper by use of calcium cyanide dust. (Citrus Substation, Riverside) Calif.

To ascertain the safeness of paradichlorobenzene to grapevines and its effectiveness against the grape rootworm. N.Y.State

Grasshoppers.

Grasshoppers. Study of the atlantis group. (A) Mont.

A study of the egg deposition of injurious grasshoppers of Iowa. Iowa.

Grasshopper control. Colo.

Grasshopper control. Minn.

Grasshopper control. The relative efficiency of different poison mixtures in poisoning grasshoppers. Nebr.

Grasshoppers.--Experiments in sprays for protection of alfalfa seed crops. Idaho



ECONOMIC ENTOMOLOGY--Grass Insects.

Grass and forage insects.

Ohio

Greenhouse Insects.

The biology and control of some greenhouse pests.

Md.

Gipsy Moth.

Control of the gipsy moth.

Conn.State.

Hessian Fly.

Hessian fly investigations. Life history, control measures, and wheat varietal resistance.

Kans.

The fall history of the Hessian fly--limits of the brood or broods if more than one.

Ky.

To determine accurately the life cycle of the Hessian fly in Missouri, and the most effective methods of controlling it.

Mo.

Seasonal history and field control of the Hessian fly in North Dakota.---  
To determine the summer brood and occurrence in the fall, and methods of control best suited to the spring wheat regions.

N.Dak.

Hessian fly control.

Ohio.

Household Insects.

Studies in the control of insect pests of dwellings and stored food, including white ants, bedbugs, ants, carpet beetles, roaches, grain and flour beetles, and moths.

Mich.

The webbing clothes moth (Tineola bisselliella) and its control.

N.Y.Cornell.

Hymenoptera.

Classification of the Hymenoptera.

N.Y.Cornell.

Wing venation of the Hymenoptera.

N.Y.Cornell.

Distribution and variation of Bombidae.

N.Y.Cornell.

Catalogue of Bombidae.

N.Y.Cornell.

Revisionary studies of North American Crabroninae.

N.Y.Cornell.

Revision of the Thynnidae of Chile.

N.Y.Cornell.

ECONOMIC ENTOMOLOGY--Insecticides and Fumigants. (See also HORTICULTURE--  
Spraying, Dusting, and Fumigating, p.216)

- New insecticides and fungicides. N.Y.State.
- Investigation of materials which promise value in insect control. Mass.
- Comparison of dry and liquid insecticides in controlling fruit insects. Kans.
- Attractants and repellents. A study of substances and compounds that attract or repel insects. (A) Mont.
- Orchard dusting. Ohio
- Killing efficiencies of dust mixtures with different physical properties. N.Y.State
- Comparative susceptibility of various insects to contact dusts containing various fillers and adhesives. N.Y.State
- The toxicity of insecticides. (A) S.C.
- A study of the toxic values on insecticides and the comparative resistance of insects to poisons. (a) Intensive study of spreaders, (b) a study of the improvement of poison sprays. Oreg.
- The toxicity of the insecticidal compounds of arsenic. Wash.
- Neutralization of soluble arsenic, copper, and lead compounds with calcium or magnesium. N.Y.State
- The use of carbon tetrachloride either alone or in combination with paradichlorobenzene or chloropicrin for fumigating grain in elevators. Minn.
- A comparison of the effectiveness of chemically pure and commercial carbon bisulphide. Md.
- Testing of fluosilicates as insecticides and the manner of their action. (P) Tenn.
- Determination of best strength of lime sulphur. Mass.
- The effect of oil emulsion on scale insects and aphid eggs. Md.
- Oil sprays, Physical and chemical properties, and toxicity to insects and plants. (P) Mont.
- The volatility and toxicity of nicotine as an insecticide and parasiticide. (Berkeley Substation) Calif.

ECONOMIC ENTOMOLOGY--Insecticides and Fumigants. (Cont.)

- Determination of efficiency of nicotine sulphate dusts. Mass.
- Comparative insecticidal properties of nicotine sulphate and tobacco dust in combating various plant bugs and aphids. N.Y.State.
- A study of California petroleums and their derivatives with reference to their toxicity to insects and their reaction to plants. (Berkeley Substation) Calif.
- The chemical, physical, and insecticidal properties of commercial pine oils and creosotes and their action on various insects as well as on plants and the germination of seed. Md.
- Insecticidal and fungicidal properties of sulphur. N.Y.State
- A study of the Xanthates with special reference to their use as insecticides as well as soil sterilizers. (Berkeley Substation) Calif.
- Tree tanglefoot investigations. Minn.
- A study of the efficiency of spreaders and stickers for insecticides. (A) Md.
- Investigations of adhesiveness of insecticides. N.Y.State.
- Efficiency of "stickers" in increasing the insecticidal value of Bordeaux mixture. Iowa.
- Control of insects by means of impregnation of the sap of plants with poisonous substances. (A) W.Va.
- The effect of insecticides and fungicides on plants. (A) N.H.
- Comparative tests of scalecides. Oreg.
- Study of possible injurious effects of scalecide on trees. Mass.

Insect Surveys.

- Insect pest surveys. Ark.
- Insect survey of Connecticut. Conn.State.
- Insect survey of Delaware. (P) Del.
- Indiana insect survey.--To explore, exploit, record, map, collect, and study the insect fauna of Indiana: To determine the occurrence and range of all insects of the State and to study their relation to plants, animals, human welfare, etc. Ind.



ECONOMIC ENTOMOLOGY--Insect Surveys. (Cont.)

- Indiana insect survey.--To study the relation of insects to the changing conditions, i.e., swamp areas being reclaimed by drainage, peat bogs, sand areas, etc., being put under cultivation for the first time, etc. ; also, studies of the small lake areas, caves, etc. Ind.
- Insect survey of Montana. Mont.
- The insect fauna of the McLean wild life preserve. N.Y. Cornell
- Cooperation on McLean survey (entomological). N.Y. Cornell

Leafhoppers.

- Biology of the Homoptera (leafhoppers). Study of the ecology, distribution, systematics, and economics of the members of this group. (A) N.C.
- Leafhopper control studies. Idaho
- The entomology and parasitology of curly leaf of sugar beets, A study of the internal anatomy and histology of nonvirulent and virulent leafhoppers. (A) Calif.

Leaf Miners. (See also insects of specific plants.)

- The boxwood leaf miner. Md.
- Biology and control of the dipterous leaf miner, Diarthronomya hypogaea, the chrysanthemum gall midge. (A) Md.

Leaf Rollers.

- The leaf roller. Wash.
- Leaf roller investigation. (Hood River Substation) Oreg.
- The fruit tree leaf roller; control experiments under Idaho conditions. Idaho

Lepidoptera.

- The stalk borer (Papaipema nitella). N.H.

ECONOMIC ENTOMOLOGY--Melon Insects. (See also specific insects and Truck Crop Insects.)

Injurious insect pests of the melon and related crops. Special attention directed to the striped cucumber beetle, the spotted beetle, the melon louse, the squash stink-bug and the squash vine borer.--To determine what pests must be dealt with by growers of these crops and to develop a practical and effective means for preventing and controlling them.

Mo.

Effects of dust mixtures on cucurbits and melon aphids and beetles. N.Y.State

Mites. (See also insects of specific plants.)

Systematic study of Ohio mites and testing of control methods for economic species.

Ohio.

Spider mites on fruit trees.---To determine species, distribution, and methods of control.

N.Y.State

Controlling the European spider mite.

Ohio.

Mosquitoes.

A systematic and biological study of the Culicidae (mosquitoes) of eastern North America.

N.Y.Cornell

Malaria-mosquito investigations.--To devise means of combating malaria in those sections of the State where this disease is a serious handicap to agriculture development. (Berkeley Substation)

Calif.

Mosquito control.--To discover the principles which underlie mosquito breeding, mosquito flight in attraction to man, and to free the areas in New Jersey which are now seriously troubled with mosquitoes from the incubus of this pest.

N.J.

Elimination of the mosquito nuisance in salt water marshes.

Conn.State.

An investigation of the malarial mosquito plague in Missouri.

Mo.

Mushroom Insects.

Life history, habits, and control of insects affecting mushrooms.(P) Pa.

ECONOMIC ENTOMOLOGY--Nursery Insects.

Insects infesting nursery stock in Connecticut. Conn. State.

An investigation to determine what insects are injurious to nursery stock in the state, their life histories, distribution, injury, and methods of control. Mo.

Nursery inspection. (Entomological) Mo.

Inspection of orchards and nurseries. (Entomological) Conn. State

Onion Insects. (See also specific insects and Truck Crop Insects.)

Control of onion thrips. Mass.

Control of onion thrips. Mich.

Parasites of Insects.

Catalogue or parasites, other than Arthropoda, of the Arthropoda. N.Y. Cornell.

Host and species catalogues of insect parasites of Arthropoda. N.Y. Cornell

Biological and ecological study of Tachinidae parasitic on the insect pests of southern crops. (A) Miss.

A study of the Tachinidae of the Northeastern United States. N.Y. Cornell

An investigation of the artificial propagation and distribution of beneficial, predacious, and parasitic insects. (A) Oreg.

Introduction of beneficial insects, including the California white-fly-eating lady beetle, Delphastus, the Sicilian mealybug parasite, Paraleptomastis, the European mealybug-eating lady beetle, Scymnus, parasites of the cane borer, and other promising parasites. Fla.

Miscellaneous investigations regarding beneficial insects:--  
Especially investigations in the control of citrus scale pests by means of parasites and the biological control of mealybugs. (Riverside and Whittier Substations) Calif.

The parasites and symbionts of insects. Minn.



ECONOMIC ENTOMOLOGY--Pea Insects.

Studies in pea insects.

N.Y.State.

Investigation of pea aphid.

Wis.

Pea aphid control.

Mich.

Peach Insects. (See also specific insects and Fruit Insects.)

Control of the peach tree borer.

Iowa.

Control of peach and apple tree borers.

W.Va.

Control of (a) the peach tree borer, (b) the grape leafhopper, (c) the grapeberry moth, and (d) the pear psylla.

Mich.

Paradichlorobenzene treatment for the control of the peach borer (Aegeria cpalescens H. Edw.), the pear root aphid (Eriosoma languinose, Hartwig), the woolly apple aphid (Erisoma lanigera, Hanson). (Berkeley Substation)

Calif.

To ascertain the safeness and effectiveness of paradichlorobenzene for the control of the peach borer.

N.Y.State.

The peach and prune root borer. Life history studies and tests of washes, sprays, paints, and protectors.

Oreg.

Life history and methods of control of the oriental peach moth, Laspeyresia molesta.

Conn.State.

Studies on the control of the oriental peach moth. (A)

Md.

Peach deforming plant bugs.

N.Y.State.

Control of peach plant bugs by dusting.

N.Y.State.

Peanut Insects.

The Florida flower thrips on citrus, peanuts, beans, eggplants, and forage crops. (A)

Fla.

Pear Insects. (See also specific insects and Fruit Insects. )

Blister mite control on apples and pears. Observations on life history and habits. Time of application and various combinations and strengths of insecticides for its control. (Hood River Substation)

Oreg.

Control of pear psylla. (Hudson Valley investigations)

N.Y.State.

Control of (a) the peach tree borer, (b) the grape leafhopper, (c) the grapeberry moth, and (d) the pear psylla.

Mich.

ECONOMIC ENTOMOLOGY--Pecan Insects. (See also specific insects.)

- Insects affecting pecan trees. Fla.
- Investigation of pecan insects. (P) S.C.
- A systematic and biological study of insects affecting the pecan. (A) Miss.
- Field study of the insects attacking the pecan, including control measures. Fla.
- To determine the life history, ecology, and control of the pecan weevil (Balaninus caryae Horn.) (A) Ala.
- The larger plant bugs on citrus, pecan, and truck crops. (A) Fla.

Peppermint Insects.

- Peppermint insects. Mich.

Phenological Insect Investigations.

- Climatic relationship of insects. (A) Mont.
- Climate and insect investigations. (P) N.J.
- Relation of temperature to insect life. (A) W.Va.
- Studies of the effects of temperature and moisture conditions in the behavior of the Hessian fly, chinch bug egg parasites, Aphis maidis, and Aphis prunifoliae. Kans.

Plum Insects. (See also specific insects and Fruit Insects.)

- The plum tree borer (Synanthedon pictipes G&R) (A) S.Dak.

Potato Insects. (See also specific insects and Field Crop Insects.)

- Potato beetle control. Mont.
- Potato spraying, to determine the value of spraying and dusting with various compounds for control of potato leafhopper. Minn.
- Spraying project to control potato leafhoppers. Wis.
- Life history and injury of the potato leafhopper, Empoasca mali. Minn.
- Methods for the control of the potato tuber moth. Md.

ECONOMIC ENTOMOLOGY--Potato Insects.(Cont.)

Spraying potatoes with Bordeaux mixture.--To determine the effect of Bordeaux mixture on the various insects that affect potatoes. N.Dak.

Potato insects. A survey of potato insects with special reference to those that may be responsible for the transmission of virus diseases. Oreg.

Potato insects. (Long Island Vegetable Research Farm) N.Y.State.

Prune Insects. (See also specific insects and Fruit Insects.)

The peach and prune root borer. Life history studies and tests of washes, sprays, paints, and protectors. Oreg.

Raspberry Insects.

Life history, habits, and control of raspberry insects. N.Y.State.

Red Spiders.

An investigation of the life history, habits, and control of the imported red spider. Pa.

The control of red spider on deciduous trees. Calif.

Hop red spider (Tetranychus telarius). A study of methods of control. Oreg.

Rice Insects.

Insects affecting rice and soy beans. (Crowley Substation) La.

San José Scale.

San José Scale: Life history and control.--To study the life history and the effectiveness of different scalecides in the control of this insect. N.Mex.

To determine the value of lubricating oil sprays for San José scale in southern Oregon. (Talent Substation) Oreg.

Scale Insects. (See also San José Scale)

Studies on the scale insects, Coccidae, of Arizona. (P) Ariz.

Systematic and biological study of scale insects of Mississippi. (A) Miss.

Dates of hatching of scale insects, and fixing dates for spraying the same. Mass.

A biological study of the oyster-shell bark louse. (Lepidosaphes ulmi) N.Y.Cornell.



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ECONOMIC ENTOMOLOGY--Shade Tree Insects.

Shade tree insect investigations. Study of insects affecting elms and cedars. Kans.

Insects affecting shade and shelter belt trees in North Dakota.--  
To determine the various insects that cause damage to shade and shelter belt trees in the State and to conduct experiments concerning adequate means of control. N.Dak.

Shade tree insects - The bagworm, fall webworm, and walnut caterpillar. (A) Ark.

Soy Bean Insects.

Insects affecting rice and soy beans. (Crowley Substation) La.

Spinach Insects.

Life history and control of the spinach leaf miner. Conn. State.

Squash Insects. (See also specific insects and Truck Crop Insects.)

Control of the squash bug. Mass.

Stored Products Insects.

Studies in the control of insect pests of dwellings and stored food, including white ants, bedbugs, ants, carpet beetles, roaches, grain and flour beetles, and moths. Mich.

A study of the role of temperature and humidity in the development of insects in flour and other cereal products in storage. (A) Minn.

Measures for protecting wheat flour and other cereals from insects. Minn.

The protection of dried fruit from insects also meat curing bins. Minn.

Strawberry Insects. (See also specific insects and Fruit Insects.)

The strawberry root louse. Ala.

Strawberry root weevil control. (P) Oreg.

The strawberry weevil. Life history studies of this insect in the Ozark region. (A) Ark.

Strawberry root weevil control. (Hood River Substation) Oreg.

The strawberry root weevil. Life history, food plants, and means of control. (P) Mont.

ECONOMIC ENTOMOLOGY--Sugar Beet Insects.

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| Investigation of the sugar beet leafhopper. | (P) | Idaho. |
| Sugar beet leafhoppers.                     | (P) | Utah.  |
| The sugar beet root louse.                  |     | Mont.  |

Sugar Cane Insects.

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| Sugar cane borer control. | (P) | La. |
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Systematic Entomology.

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|--|-----|--------------|
| Study of types of <u>Chironomidae</u> and <u>Mycetophilides</u> .  |     | N.Y.Cornell. |
| Formation of the embryonic envelopes in <u>Diacrisia virginica</u> .   |     | N.Y.Cornell. |
| Biology of the Diptera.  |     | N.Y.Cornell. |
| The Diptera of the Wild Life Reservation at McLean.  |     | N.Y.Cornell. |
| A systematic and biological study of some <u>Halticidae</u> , an important family of beetles affecting agricultural crops. |     | N.Y.Cornell. |
| A systematic biological and ecological study of the Hemiptera of Delaware.   | (P) | Del.         |
| Monographic studies on the family Miridae (Hemiptera-Heteropter)   |     | Minn.        |
| General work on Lepidoptera.   |     | N.Y.Cornell. |
| Trap lantern run:for seasonal distribution of local Lepidoptera.   |     | N.Y.Cornell. |
| Monograph of North American Plecoptera.  |     | N.Y.Cornell. |
| Study of neotropical Vespidae and their nests.   |     | N.Y.Cornell. |
| The stone flies, May flies, and dragon flies of southern California.   |     | N.Y.Cornell. |
| Black flies.   |     | N.H.         |

ECONOMIC ENTOMOLOGY--Thrips.

A systematic study of the Thysanoptera (thrips) of New York State. N.Y.Cornell

The Florida flower thrips on citrus, peanuts, beans, eggplants, and forage crops. (A ) Fla.

Ticks.

Tick investigations. Mont.

A study of the Ixodoidae (ticks) of New York State. N.Y.Cornell

Tobacco Insects. (See also specific insects and Field Crop Insects.)

Investigation of insects injurious to tobacco in Wisconsin. Wis.

The flea beetles of tobacco. (A) Ky.

The tobacco flea beetle. --To study types of trap beds most efficient in their control. N.C.

Tomato Insects.

The tomato fruit worm. Experiments with corn as a trap crop. Tenn.

Truck Crop Insects.

Garden or truck insects. Ohio

Truck crop insects and control. Wis.

Important insects affecting garden crops: (a) Harlequin cabbage bug, cabbage aphid, cabbage butterflies, cabbage loopers, flea-beetles, onion thrips, cutworms, squash bug, cucumber beetles, and possible new pests, (b) to learn of the natural enemies and other factors influencing the prevalence of the pests, (c) to determine possible adequate and practical means of control. N.Mex.

An investigation of the life history, habits, and methods of control of the plant lice (aphididae) affecting truck crops. Pa.

The study and control of truck crop insects of California, particularly the garden centipede (Scutigera immaculata). (Berkeley Substation) Calif.

Control of the corn earworm on truck crops. W.Va.

The pea aphid as a pest of truck crops. (A) S.C.



ECONOMIC ENTOMOLOGY-- Truck Crop Insects. (Cont.)

The larger plant bugs on citrus, pecan, and truck crops. (A) Fla.

A study of the control of millipedes affecting truck crops and field crops. Pa.

An investigation of the life history, habits, and methods of control of wireworms (Elateridae) affecting truck crops. Pa.

Cutworms affecting field and garden crops. (P) Me.

Insects affecting field and vegetable crops. (P) Me.

Turnip Insects.

The turnip webworm (Hellula undalis). Life history and methods of control. (A) Ala.

Velvet Bean Insects. (See also specific insects and Field Crop Insects.)

Life history studies of the velvet bean caterpillar (Anticarsia gemmatilis) (A) Fla.

Walnut Insects.

Codling moth in walnuts. (Citrus Substation, Riverside) Calif.

Wheat Insects. (See also specific insects and Field Crop Insects.)

The wheat stem maggot (Meromyza americana Fitch), its distribution, food plants, economic importance, life history, habits, natural enemies, and control. (A) S.Dak.

Wheat insect pest survey. Iowa.

Wireworms.

The wireworm. Wash.

Wireworms. Life history, distribution, and control of species injurious to crops. (P) Mont.

Study of the life history, methods of control, and relation of soil type to destructive wireworms. Iowa.

Wireworms: Locality survey at Parma; studies in bionomics and control; taxonomy of wireworms of the State. Idaho.

Bionomics and control of false wireworms injurious to Dry Land grains. (P) Idaho.

ECONOMIC ENTOMOLOGY--Miscellaneous.

- Insects injurious to roots of staple crops. --Studies of May beetles, *lachnosterna scarabaeidae*, wireworms, and false wireworms. Kans.
- General insect investigations. Colo.
- Root and soil infesting insects - methods of control, including onion maggots, root weevils, symphilids, and other underground insects. Oreg.
- Investigations in soil treatment of subterranean insects. (A ) Wash.
- Soil infesting insect investigations. N.J.
- Insects as carriers of certain plant diseases.--To determine what insects, if any, are important in the transmission of mosaic and certain other diseases of plants, with a view of more complete control of the plant diseases. Ind.
- Insects in relation to spread of plant diseases. Wis.
- The biology of aquatic insects. N.Y.Cornell
- The caddice worms of lake beds. N.Y.Cornell
- Insects affecting the health of animals. Wyo.
- Investigation and control of injurious insects, mammals, and birds. Nebr.
- Corroborative control studies.--To test the efficiency and practicability under Indiana conditions of controls reported elsewhere, including control of the peach tree borer, San Jose scale, oyster shell scale, cucumber beetle, and aphids, cabbage maggot, onion maggot, onion thrips, and Hessian fly. Ind.
- An investigation to determine how sap-sucking insects injure plants. Mo.
- Resistance of crop plants to insect injury. (P) Kans.
- Miscellaneous insects:--(a) Fruit tree leaf roller, (b) blister mite, (c) sugar beet crown borer, (d) sugar beet root maggot, (e) dusting, (f) pine leaf borer, (g) field ants, (h) insect pest survey, and (i) graduate student work. Utah.
- Histology of the eye and optic ganglion in flies. N.Y.Cornell

ECONOMIC ENTOMOLOGY--Miscellanecus. (Cont.)

Bionomics and control of ground cherry worms.	Iowa.
Insect collection.	Minn.
Collection and identification of Arizona insects, especially the economic forms.	Ariz.
Insectary work.	Minn.
Miscellaneous entomological investigations.	W.Va.
An investiagion to determine the causes of the periodical recurrence of insect pests as scourges.	Mo.
Administrative: Including all general phases of investigational work on insects of economic importance.	N.Dak.
Insects pests and plant diseases and their control.	Fla.



FEEDING STUFFS AND ANIMAL NUTRITION.

Animal Nutrition.

- The fundamental food requirements of animals. Minn.
- Studies in rations as affecting sterility, reproduction, and lactation in the rearing of young. N.C.
- The dietary requirements for reproduction and lactation. (A) Ark.
- Experiments in compounding a ration satisfactory for growth and reproduction when the intake of minerals may be controlled. (A) Oreg.
- The effect of organic nutrients from single v. mixed plant sources on the growth and reproduction of animals. (A) Wisc.
- A study of feed requirements for growth and reproduction of swine. (A) Kans.
- Relations of fertility to nutrition in the mammalia. (P) Calif.
- The effect of diet on fertility. (A) Conn.State.
- The relation of diet to bodily activity and the capacity to withstand unfavorable circumstances. Mo.
- The effect of high protein on the kidney and other organs. (A) Conn.State.
- The antagonism of certain ions in the nutrition of higher animals. Minn.
- Study of factors influencing the normal rate of growth in domestic animals and the permanency of the effects of arrested development. (A) Mo.
- Attempt to ascertain the use made of food by steers at different ages and in different conditions. (A) Mo.
- Changes in the composition of protoplasmic tissue caused by partial starvation. Mo
- Relation of feed consumed to protein and energy retained in the carcass. Mo.
- Studies in digestion in herbivora. Minn.
- Feeding concentrates alone to ruminants. Mich.
- Study of energy metabolism of beef steers. (Pa.Inst.An.Nutr.)(A) Pa.

FEEDING STUFFS AND ANIMAL NUTRITION--Animal Nutrition. (Cont.)

- Protein storage in protoplasmic tissue. Work on the amino acids in the globulins and albumins of beef flesh in fat and very thin cattle. (A) Mo.
- Cooperative experiments on the protein requirements for growing cattle.--To determine the optimum protein requirement for the growth of cattle without material fattening. (A) N.Dak.
- Study of the part played by individual amino acids in nutrition. (A) Conn.State.
- Minimum crude fiber requirements for ruminants. Mich.
- The alkaline reserve of the blood of dairy cattle under ordinary farm conditions. Mich.
- Factors influencing the alkaline reserve of dairy cattle. Mich.
- Nutrition studies with dairy cows. (P) N.H.
- Protein needs of dairy cows. (A) Vt.
- The protein and energy requirements for milk production:  
(a) Protein requirements for milk production; (b) the effects of high and low protein rations on milk production, metabolism, and growth of the animal. (A) Va.
- Influence of nutrition of heifers and the age of breeding upon their subsequent development. Protein requirements for growth. (A) Mo.
- Food requirement for growing dairy cattle. Energy requirements for growth. Minn.
- Energy requirements for maintenance of calves. Minn.
- Metabolism trials with young calves. Iowa.
- Feed requirements for dairy cattle.--Milk as a sole diet for calves. Minn.
- Cottonseed meal studies.--Effect of deficiencies of meals prepared from high oil-bearing seeds on health and growth of calves. (P) N. C.
- Sunlight in relation to the growth of calves. Kans.

FEEDING STUFFS AND ANIMAL NUTRITION--Animal Nutrition. (Cont.)

Study of basal metabolism with cattle and sheep during various stages of development, including (a) pregnancy or foetal growth; (b) first year's growth after birth; (c) second year's growth after birth. (A) N.H.

The utilization of energy of fattening lambs. (A) Ill.

Specific nutritional effects of rations upon swine and sheep. Iowa.

The physiological effect of feeding rations restricted to Canadian field peas on growth and reproduction in swine. Idaho.

A study of gelatin in the nutrition of swine. N.J.

Nutritional requirements of poultry--essential dietary factors. (P) Mo.

Nutrient requirements of growing poultry. (P) Nebr.

A poultry nutrition project. (P) Pa.

Nutritive requirements of poultry with special reference to vitamin requirements, mineral requirements, and effect of ultra-violet light and of sunlight. (P) Wisc.

The development of a ration which will accurately show the requirement of growing chicks for the various food factors. N.Y. Cornell

The net energy value of feeds for chicks.--To determine the net energy value of different farm feeds for chickens of different age and sex. (A) Ill.

Metabolism in the chicken. (A) Ky.

A systematic study of the physical reaction of hens to incomplete rations, with particular reference to the so-called nutritional roup. N.Y. Cornell

Deficiencies of feed fed hens as affecting the vitality of chicks. A study of the effect of feeds deficient in one or more essential factors, i. e., ash, protein, fat-soluble A and fat-soluble B vitamins, fed laying hens on the vitality of the chicks. (A) Kans.

The basal heat production of chickens of different age and sex. Ill.



FEEDING STUFFS AND ANIMAL NUTRITION--Animal Nutrition. (Cont.)

- To determine the comparative rates at which different foods pass through the digestive tract of the hen and the comparative rates of absorption. (A) Ill.
- The relation of dirt to the rate of growth. (A) Conn.State.
- A study of the relation of dirt to the development of bone. (A) Conn.State.
- A study of a nutritional disturbance similar to osteomalacia among cattle. Minn.
- Studies on the dietary value of meat.--The effect of a maximum and a minimum amount of meat and of a mixed and vegetable diet on the growth, development, reproduction, and general vitality of rats. Iowa.

Feeding Stuffs, Composition and Nutritive Value.

- Miscellaneous digestibility and metabolizable energy studies.--To determine the digestible nutrients and metabolizable energy in various feeding stuffs. N.Dak.
- Digestibility and metabolizable energy studies.--To determine the digestibility and metabolizable energy in different silages when these are combined with other feeds in rations. (A) N.Dak.
- The mutual influence of the proportion of the several nutrients in feeds on their digestibility. (A) N.Mex.
- Investigation of the nutritive value of feeds, Studies of (a) the productive values, (b) the proximate composition, and (c) the digestibility of the proximate constituents of feeding stuffs. (A) Tex.
- Studies on digestion of feeds [with poultry]. N.Y.Cornell.
- The composition and deficiencies of plants. Tex.
- An investigation of the nutritive value of forage plants of California stock ranges. (Berkeley Substation) Calif.
- The relative vitamin, protein, amino-acid and mineral values of certain forage crops for growth and reproduction. (A) Ark.
- The nutritive value of the proteins of feeding stuffs and biological values of the various proteins. (A) Ill.
- A comparison of the production values of grain mixtures of different protein content. N.Y.Cornell

FEEDING STUFFS AND ANIMAL NUTRITION--Feeding Stuffs, Composition and  
Nutritive Value. (Cont.)

The energy value of alfalfa hay for sheep.		Ill.
Yield and digestibility of various cuttings of alfalfa and sweet clover.	(P)	Wash.
The relative net energy values of timothy and alfalfa hay for sheep.	(A)	Ill.
Digestion trials on prairie grass hay.--To determine the digestibility of prairie grass hay from annual and biennial cuttings.		N.Dak.
Nutritive and economic effect of cutting or grinding hay and other dry roughages for livestock.	(P)	Wisc.
The relative net energy values of timothy, clover and alfalfa hay and oat straw.	(A)	Ill.
The feeding value and palatability of sweet clover hay. (Northwest Substation, Crookston)		Minn.
Investigations as to relative merits of various pasture and soiling grasses and legumes for animals, especially dairy cows.		Hawaii.
Net energy values of the roughages--corn stover, corn silage and soy bean hay. (Pa. Inst. An. Nutr.)	(A)	Pa.
Composition and nutritive properties of the mung bean.		Okla.
The digestibility and metabolizable energy of soy bean products for ruminants.	(A)	Ill.
The nutritive value of soy beans and soy bean products.		Ohio
Soy beans.--To secure further data concerning the relative worth of different soy bean oil meals.		Ohio
Soy beans.--To determine the effect of their oil content on the feeding value of soy beans.		Ohio
Feeding value of sunflowers according to maturity of the plant, and methods of harvesting.		Mont.
Legumes for growth, production, and reproduction.		Ohio.
Cocoa meal as a feed for farm stock.	(P)	Vt.
Effect of deficiencies of cottonseed meal on reproduction and lactation of dairy cattle when fed as 50 per cent of concentrates along with good roughage throughout a full gestation and lactation period.		N.C.



FEEDING STUFFS AND ANIMAL NUTRITION--Feeding Stuffs, Composition and Nutritive Value. (Cont.)

- Effect of heavy cottonseed meal feeding on growth, reproduction, and lactation of dairy heifers when various qualities of roughage are used. N.C.
- Effect of heavy cottonseed meal feeding on reproduction and lactation of the dairy cow. N.C.
- Injurious effect on livestock of sugar beets and their by-products. (P) Utah.
- A study of food value of velvet beans for hogs and beef cattle. S.C.
- A study of the energy value of milk. Ill.
- The relative value for milk production of the protein of legume and nonlegume roughage. A nitrogen-balance experiment. N.Y. Cornell.
- A study of apparent deficiencies in grain, grasses, and forage crops of Montana as feed for livestock, particularly in the percentage of calcium and phosphorus found and their relation to soil types. (P) Mont.
- Determination of the mineral constituents of various Florida-grown cattle feeds, as compared with feeds grown farther north. Fla.
- Table scrap meal project. Okla.
- The effect of yeast upon the digestibility of feed. Okla.

Mineral Metabolism.

- Mineral metabolism and mineral requirements of animals. (A) Wisc.
- Mineral metabolism of cattle. (Pa. Inst. An. Nutr.) (A) Pa.
- The mineral requirements of laboratory animals on purified rations. Iowa.
- Effect of minerals on growth, reproduction, and ash content of white rats. (P) Ala.
- Testing the feeding value of different mineral feeds. Mich.
- Mineral supplements in dairy rations. (A) Oreg.
- The influence of green feed upon the mineral metabolism of lactating animals. (A) Ohio.



FEEDING STUFFS AND ANIMAL NUTRITION--Mineral Metabolism. (Cont.)

- Inorganic elements in animal nutrition. The specific rôle of the elements, potassium in particular, and the mineral equilibrium in dairy cows during lactating and dry periods. (A) Oreg.
- Food requirements for dairy cattle.--Mineral requirements. Minn.
- The relative effect of rations based on timothy hay and clover hay on the mineral balance of dairy cows. N.Y.Cornell.
- Mineral requirements for milk production. Ill.
- The calcium balance of dairy cows. Iowa.
- Factors influencing mineral metabolism in dairy calves. Studies of effects of ultra-violet light on mineral metabolism. Kans.
- The effects of excessively acid ash rations and excessively basic ash rations on the health and growth of calves. Mich.
- The effect of ration deficient in lime on calves. Mich.
- The value of minerals in mixed rations for swine, sheep, and cattle. Colo.
- Effect of minerals on the development of swine. (P) Okla.
- The effect of calcium on the composition of the eggs and carcass of the laying hen. (A) Ky.
- Calcium requirements of chickens. Wisc.
- Calcium requirements of growing chicks and laying hens. Iowa.
- To determine if manganese, copper and zinc are or are not essential factors in reproduction and in animal metabolism, and if compounds of any of these elements can function separately or in combination as the so-called vitamins. (A) Ky.
- To determine if manganese is or is not an essential element in animal metabolism, with particular reference to its connection with vitamins. (A) Ky.
- Study of the requirement of potassium, injurious effect of lack of potassium, and effect of high potassium intake on physiological activity and excretion of other elements. (A) Oreg.

FEEDING STUFFS AND ANIMAL NUTRITION--Silage. (For silage feeding experiments, see under various ANIMAL HUSBANDRY headings. See also FIELD CROPS--Silage crops, p. 142)

Silage investigation

Ark.

Methods of silage production at Churchville and Alfred, N.Y. N.Y. Cornell.

Farm crops production investigations. (Northeast Substation, Duluth) Minn.

The digestible nutrients in silages.

Iowa.

Silage studies: Nature and extent of losses of nutrients in the silo. Changes occurring during fermentation.

Ohio.

Silage investigations. Chemical and feeding tests of silages made from kafir stover, kafir fodder, cane stover, cane fodder, corn stover, and corn fodder.

Kans.

The comparative feeding values of different kinds of silage.--To obtain data on the relative feeding values of silages made from different crops and the relative feed values of the crops per acre.

N. Dak.

New varieties of silage. Palatability tests on the following silages: Wheat, horse beans, mesquite, wild cucumber, dog fennel, Cluna lettuce, Eureka clover, Tangier peas, Hungarian vetch, mustard, tar weed, goat weed, Canada thistle and more thorough tests with ear corn silage for pigs.

Oreg.

The value of sunflower silage for feeding cattle. (Langdon Substation)

N. Dak.

Silage.--To determine the value of sunflower silage as a feed for farm animals.

N. Dak.

Factors causing poor quality in sunflower silage in the Yellowstone Valley.

(A)

Mont.

Soft corn silage.

Iowa.

Vitamin Studies as Related to Animal Nutrition. (See also HOME ECONOMICS--Vitamin Studies as Related to Human Nutrition, p. 430.)

Distribution of vitamins in feeds, and especially the influence of feed on the vitamin content of milk, the stability of vitamins and their relation to growth and reproduction, the destruction of vitamins by specific fermentations, by light, and by curing of roughages.

(A)

Wisc.



FEEDING STUFFS AND ANIMAL NUTRITION--Vitamin Studies as Related to  
Animal Nutrition. (Cont.)

- Studies of the factors necessary in the maintenance of mammals, especially the relationship of the roughage factor, the antirachitic vitamin, and of light in rearing swine and baby chicks. (A) Wisc.
- Determination of whether chlorophyll, chlorophyll Alpha and Beta, the petroleum-ether extracts of the yellow pigments of alfalfa, can be used as a source of vitamin A in animal nutrition. (P) Fla.
- The relation of vitamins to the growth of dairy calves. Minn.
- A study of the vitamin requirements of growing calves. Minn.
- Vitamin B requirements of the dairy calf. Pa.
- Effect of corn silage on vitamin C potency of milk. S.Dak.
- The mineral and vitamin requirements for growing pigs, with special reference to the effect of diet on bone development. (A) Ohio.
- Study of vitamin deficiency.--A study of the effect of a deficiency of the antiscorbutic vitamin in the ration of young pigs, with special reference to diseases. Ind.
- The effect of yeast in feeds and their utilization by fattening swine. Mo.
- Studies in the nutrition of mature cockerels in confinement.--  
To determine the persistence of the antiscorbutic substance in the livers of cockerels after long intervals of a scorbutic diet. Ind.
- Studies in the nutrition of mature cockerels in confinement.--  
To determine whether, for the normal nutrition of mature cockerels, there exists a required ratio between protein and vitamin B. Ind.
- The effect of minerals and vitamins on rate of growth in chicks. Iowa.
- Deficiencies of feed fed hens as affecting the vitality of chicks. A study of the effect of feeds deficient in one or more essential factors, i.e., ash, protein, fat-soluble A and fat-soluble B vitamins, fed laying hens on the vitality of the chicks. (A) Kans.
- The growth of young chicks as affected by rations deficient in vitamin A. (A) Ohio.



FEEDING STUFFS AND ANIMAL NUTRITION--Vitamin Studies as Related to  
Animal Nutrition. (Cont.)

- Fat-soluble vitamin requirements of growing chicks. (A) Ill.
- Do growing chickens require a vitamin B supplement to a mixed grain ration? (A) Ill.
- A study of the relative potency of different brands of pure medicinal cod liver oil in preventing leg weakness and in inducing rapid growth of baby chicks. N.Y. Cornell.
- Influence of antirachitic substances on growth in poultry. (P) Me.
- Studies in poultry nutrition.--To obtain the antiscorbutic value of the content of eggs. Ind.
- The value of yeast in poultry rations. N.Dak.
- To determine the effect of (a) sunlight, and (b) concentrated ultraviolet rays on the growth of chicks (1) on a complete diet, and (2) on a diet deficient in vitamin A. (A) Ill.

ANIMAL HUSBANDRY.

General.

Meat Investigations. (See also SWINE--Soft Pork, p. 347.) -

- The relation of the sex and age in cattle and the kind, quantity, and quality of feed fed to cattle, to the quality and quantity of carcasses they produce. (P) Mo.
- Factors influencing grade and quality of beef. (P) Mont.
- Factors affecting the production and quality of beef. (P) Nebr.
- Influence of feed on color, chemical composition, and cooking quality of meat of grass fat cattle. (P) Kans.
- Factors influencing the quality and palatability of meat.  
Methods of cooking meats. (P) N.Dak.
- Factors influencing quality and palatability of meat. (P) Iowa.
- Grass and grain feeding as related to quality and palatability of mutton. (P) Miss.
- Influence of sex and breeding on production, quality, and palatability of meat of two-year-old steers and heifers. (P) Miss.
- Investigation of the influence of grade or quality in steers upon their (economical) wintering and upon quality of meat produced. (P) W. Va.

ANIMAL HUSBANDRY, General--Meat Investigations. (Cont.)

Factors affecting the quality and palatability of meat.--The effect of type upon (a) economy of gain, (b) quality and palatability of meat. (P) Wyo.

The effect of feeding soft corn upon the quality of beef. Ill.

The influence of sex and of cottonseed meal v. corn on the quality of meat. (P) N. C.

Internal parasites of meat-producing animals as a factor in the production and quality of meat. (P) La.

Studies in meat curing, including curing and smoking meat, storing cured meats, measurements, shrinkages, color, firmness, flavor, keeping qualities, and related data. Iowa.

Meat investigations.--salt studies in curing hams and bacons. The effect of varying quantities of salt on the keeping qualities of ham and bacon. (P) Kans.

Dressed beef record. Yield, color, conformation, and grade of dressed beef. (Union Substation) Oreg.

Study of factors influencing the quality of ham and bacon. Md.

A study of the several and various factors which are concerned in the production of superior ham. (P) Md.

A comparison of fishmeal and tankage with reference to the effect on rate of growth, texture, and quality of carcass (with swine). N.J.

Soft pork investigations. A study of the factors which influence the quality and palatability of meat. (Davis Substation) Calif.

Physical analyses of beef carcasses. Mo.

The relation of the bodily shape to rate of gain, to dressing per cent, and to value of the dressed meat in beef cattle. (P) Tex.

Iron content of meats. (Pa. Inst. An. Nutr.) (A) Pa.

Relationships of microorganisms to meat curing. Iowa.

Miscellaneous.

Cattle breeding. (Calhoun Substation) La.

Cattle breeding.--To test the feasibility of importing high-yielding cows from the north in comparison with crossbreeding of native types in founding a herd. Porto Rico.



ANIMAL HUSBANDRY, General--Miscellaneous. (Cont.)

Cattle breeding (development of improved station herd).--To develop a general purpose type of cattle suited to local conditions. Guam.

Cattle breeding (public improvement work).--To upgrade the native cattle of the island, improving the type in size, conformation, and milking and beef qualities. Guam.

Age as a factor in animal breeding. (A) Mo.

Investigation of the influence of environment on the embryonic and postnatal development of mammalia. A study of hyper- and hypothyroidism in the mother as affecting the offspring. (P) W. Va.

Line breeding v. outcrossing. W. Va.

The grading up of south Mississippi native cattle by the use of purebred sires. (Coastal Plains Substation) Miss.

Breeding yak.--To learn their adaptability to cold weather conditions of northern Alaska. (Fairbanks Substation) Alaska.

Livestock studies. (Delta Substation) Miss.

Shipping shrinkage of livestock.--To determine the losses from shipping, to learn the causes, and to ascertain the means of reducing these losses to a minimum. N. Dak.

Temperature range in normal cattle. Mont.

A study of various methods of preparing peat for use as barn litter. (Grand Rapids Substation) Minn.

Miscellaneous animal husbandry observations. Mont.

Horses and Mules.

Breeding.

Horse breeding. Wyo.

Breeding experiments with horses and mules. S. C.

Improvement of native horses.--To improve or upgrade the native horses of the island with the view of ultimately evolving a type of horse best suited to local conditions. Guam.



ANIMAL HUSBANDRY, Horses and Mules--Feeding.

- Wintering idle brood mares in blue grass pasture supplemented with oat straw and limited grain ration. Mo.
- Effect of balanced and unbalanced rations on work mules. Miss.
- Food required for raising colts. N.Y. Cornell.
- To secure data concerning the feed required for growth in draft colts. Mo.
- Feeding purebred draft fillies from weanlings to two-year-olds. Ill.
- Horse production. A study of preparation of feeds and the value of minerals in raising draft colts. Iowa.
- Alfalfa for horses. Mich.
- Corn and cob meal, linseed meal, and oat straw as a wintering ration for farm work horses. Mo.
- Oat straw as a winter roughness for farm work horses fed in connection with a grain ration of 2 parts corn, 2 parts oats, 1 part bran, and linseed meal to balance the ration. Mo.
- Corn silage as a part ration for horses of various ages. Mo.
- Silage for raising colts. N.Y. Cornell.

Miscellaneous.

- A study of the growth of draft horses of different breeds.--To secure data on the rate and manner of growth of draft horses from birth to maturity. N. Dak.
- Relative efficiency of breed mares for farm work. Mo.

Beef Cattle.

Breeding.

- Experimental analysis of the heredity factors determining milk and meat production in cattle. (A) Wisc.
- Beef cattle breeding. Utah.
- Age of breeding range cattle. A study of the influence of age of breeding upon the development of dam and offspring in beef cattle. (Fort Hays Substation) Kans.

ANIMAL HUSBANDRY, Beef Cattle--Breeding. (Cont.)

- Breeding experiments with purebred Shorthorn cattle.--To establish a dual purpose type of greater beef tendency than is now characteristic of the milking Shorthorn without sacrificing milk production. (Jackson Substation) Tenn.
- The development of a high grade Shorthorn herd of cattle. (Langdon Substation) N. Dak.
- Beef cattle. Building up a grade herd from native stock and purebred Angus, Hereford, and Shorthorn bulls. Miss.
- Economic value of Holstein-Angus cross for producing beef in grade Holstein dairy herds. Wisc.
- North Dakota cattle breeding circuit, New Salem. N. Dak.
- Cross-breeding yak and Galloway.--To establish a bovine breed which shall be as hardy as the moose for northern Alaska. (Fairbanks Substation) Alaska.

Feeding Experiments, General.

- Steer feeding. W. Va.
- Steer feeding experiments. (Worland) Wyo.
- Steer feeding investigations. (Caldwell Substation) (P) Idaho.
- Beef cattle feeding experiments. (P) Ohio.
- Growing and fattening steers. W. Va.
- Fattening cattle. Iowa.
- Rations for fattening steers. Pa.
- Maintenance rations for breeding beef cattle--To study the possibility of maintaining a breeding herd of beef cattle upon the by-products of a common corn belt rotation. Ill.
- Methods of fattening beef cattle in California. (Davis Substation) Calif.
- Age as a factor in the feed lot (with steers). Ariz.
- Fattening cattle.--To ascertain the effect of age upon the rate and economy of gain in cattle. Nebr.
- Steer feeding.--To compare the gains made by fattening steers fed on different rations. Utah.



ANIMAL HUSBANDRY, Beef Cattle--Feeding Experiments, General. (Cont.)

- The economic utilization of home-grown feeds in fattening beef cattle. (Prosser Irrigation Substation) Wash.
- The use of native grown feeds for wintering beef animals. (Coastal Plains Substation) Miss.
- Range supplemental feeding studies with beef cattle. (P) N.Mex.
- Influence of feed on color, chemical composition, and cooking quality of meat of grass fat cattle. (P) Kans.
- Methods of utilization of native pasture in beef cattle feeding.--Studies of methods of better utilization of native grass pastures by supplemental feeding. Kans.
- Short feeding cattle.--To study the economy of carrying grass cattle beyond the grass fat condition; to determine the gain possible with bunk or rack feeding in the open yard with corn fodder and ensilage, respectively; to learn the feasibility of sheltering such cattle in a straw shed; to study the feeding and feed value of sunflower ensilage and sweet clover ensilage; to determine the effect of a light grain supplement to ensilage rations. N.Dak.
- Limited grain rations for fattening cattle of different ages. Mo.
- Fattening cattle in winter. Relative value of protein supplements. Iowa.
- Winter feeding of beef cattle. (North Montana Substation) Mont.
- Beef production. Study of winter feeding of beef steers. Mont.
- Wintering beef cows. A comparison of stover silage, dry stover, and corn silage. Ohio.
- Winter feeding experiments with range cattle. Trials of various rations of western Kansas-grown feeds. (Fort Hays Substation) Kans.
- The relation between winter rations for beef steers and subsequent finishing of beef on blue grass pastures the following season, with grain supplements while on grass, to the economy of beef production and to quality in the beef produced. Va.
- Growing steers--Winter rations. (a) Straw and cottonseed cake. (b) Straw and limited hay allowance. (c) Alfalfa hay with both peas and barley and sunflower silages. (d) Alfalfa hay--full, medium, and light feeds. (e) Alfalfa hay and silage--full, medium, and light feeds. (Union Substation) Oreg.



ANIMAL HUSBANDRY, Beef Cattle--Feeding Experiments, General. (Cont.)

- A comparison of different summer rations for fattening steers. Ill.
- Alfalfa hay and corn silage for fattening cattle. Hay and silage with oil meal or with corn. Ohio.
- Ration experiments with steers: (a) To determine the value of an acre of beet tops. (b) To compare three ways of utilizing tops as a cattle feed--(1) pastured in the field; (2) dried and hauled to the lot; (3) fed as beet top silage. (c) To determine the comparative effect of feeding beet tops v. wet pulp with alfalfa in a preliminary test with cattle. (d) To compare wet pulp, beet top silage, and corn silage when fed with alfalfa hay. (e) To compare dried molasses beet pulp with wet beet pulp and molasses when fed with cottonseed cake and alfalfa. (f) To find a satisfactory ration for feeding beet top silage. (g) To compare wet pulp and corn silage. (h) To determine an economical utilization of dried molasses beet pulp. Colo.
- Alfalfa v. clover hay for fattening steers. Wisc.
- The feeding value of sweet clover hay for beef cattle. (Crookston Substation) Minn.
- Value of legume hays for fattening steers. Ark.
- Fattening steers.--A comparison of soy bean hay and clover hay. Ind.
- Utilization of soft corn for fattening two-year-old steers. Ill.
- Value of soft corn for beef production. S. Dak.
- Comparison of linseed meal, cottonseed meal, and a mixture of linseed and cottonseed meal as supplements for fattening steers. Wisc.
- Fattening steers.--A comparison of rations containing cottonseed meal with those without cottonseed meal. Ind.
- Steer-feeding experiments. All lots receiving cottonseed meal with varying amounts of corn and different roughages. Miss.
- Silage feeding investigations. Methods of securing maximum utilization of silage in beef cattle feeding. Studies of effects of feeding varying quantities of cottonseed meal with silage. Kans.
- Fattening steers on sumac silage, sumac fodder, and cottonseed hulls supplemented with ground milo heads and cottonseed meal. Tex.

ANIMAL HUSBANDRY, Beef Cattle--Feeding Experiments, General. (Cont.)

- Feeding yearling steers.--To determine the relative efficiency of sumac silage and sumac fodder as roughage for fall fed steers in winter time, and the relative efficiency of cowpea hay and cottonseed meal as nitrogenous supplements. N. Mex.
- Wintering and finishing calves. Okla.
- Feeding grain to beef calves while following their dams. Mo.
- Fattening steers and heifers.--Calves v. two-year-olds and heifers v. steers. Ind.
- Steer feeding.--To compare the profitableness of calves v. yearlings v. two-year-olds: (a) The economy of feeding grains and protein concentrates on various levels in the ration; (b) a comparison of protein supplements, such as soy beans, soy bean meal, linseed meal, and cottonseed meal. Ohio.
- Baby beef-feeding and grazing experiment. (Columbia Substation) Tenn.
- A study of different methods of finishing range calves as baby beef. Calif.
- Cost of production and method of breeding, feeding, care, and management of baby beef. N. Dak.
- Cattle feeding for fattening baby beeves. (P) Okla.
- Baby beef growing and fattening. Iowa.
- Baby beef fattening.--To ascertain the advantages of using various rations and to compare steer and heifer calves. Nebr.
- Sunflower silage for baby beef. Mont.
- Baby beef production.--To determine the value of oil meal, cottonseed meal, gluten meal, ground soy beans, and ground flax, with the same roughage and grain ration. S. Dak.
- Beef cattle investigations.--Finishing baby beef. Mich.
- The value of several rations for baby beef production. Minn.
- Minerals for beef calves. Ohio.

Grazing and Range Experiments.

- Grazing studies. Idaho.



ANIMAL HUSBANDRY, Beef Cattle--Grazing and Range Experiments. (Cont.)

- Grazing records with steers. (a) The effect of winter rations upon the gains made while in the yards and on summer range. (b) Final weight at time of marketing. (c) Cost of production. (Union Substation) Oreg.
- Cattle grazing trial--To determine the carrying capacity and the effect of sweet clover pasture on cattle. N.Dak.
- Grazing experiments with cattle, sheep, and swine to determine value per acre of alfalfa, yellow sweet clover, and white sweet clover for pasture. (Brookings and Cottonwood Substations) S.Dak.
- Range survey.--A survey of existing conditions, their causes and relationships. (P) Ariz.

Miscellaneous.

- The introduction of purebred beef cattle. Ky.
- Investigations in cattle raising. (Duluth Substation) Minn.
- Growing beef cattle. W. Va.
- Beef cattle. Maintenance of herd. (North Platte Substation) Nebr.
- Methods of managing and feeding a purebred beef herd. Wash.
- Cost of production and method of breeding, feeding, care, and management of baby beef. N.Dak.
- Beef cattle production in Missouri. Mo.
- Beef cattle investigations on Coastal Plains soils. (P) Miss.
- Feeding and killing qualities of steers. Tex.
- Dressed beef record. Shrinkage in live weight during shipment. (Union Substation) Oreg.
- Investigation in cattle production. Okla.



Dairy Cattle.

Breeding.

- The study of the inheritance of characters in dairy cattle in a crossbred Guernsey-Holstein herd. Ill.
- The mode of inheritance of milk production and associated characters in cattle. (A) Me.
- Influence of inbreeding relationship to source of stock and productivity of dairy cattle. (P) Me.
- Dairy herd management. Line v. crossbreeding. N.Y. State.
- Line breeding v. outcrossing (Dairy). W. Va.
- Line breeding and outcrossing as systems of breeding dairy cattle. S.C.
- Inbreeding and line breeding compared with outcrossing as regards its effect upon dairy cattle, their milk and butterfat production, conformation, fecundity, and general characteristics. Idaho.
- Line breeding of Holsteins. S.C.
- Breeding experiments with dairy cattle. A comparison of line breeding with outcrossing and inbreeding with outcrossing in the breeding of dairy cattle. N.J.
- A crossbreeding experiment with dairy cattle. S.Dak.
- Constructive breeding of dairy cattle. Tex.
- Improvement of the station dairy herd. Del.
- Influence of feed, environment, and breeding on native unimproved cows and their offspring, as regards development of milk-producing qualities, composition of milk digestive capacity, and utilization of feed in dairy and beef production. (A) Iowa.
- The breeding and feeding of the dairy herd. (Union Substation) Oreg.
- Breeding experiments with dairy cattle.--To determine the method of breeding that will best fix and insure the transmission of high production in dairy cattle. (Davis Substation) Calif.
- Herd development.--To determine the extent to which the production of a dairy herd may be maintained and increased by the use of selected well-bred sires whose purchase price is within the buying power of the dairy farmer. N.C.

ANIMAL HUSBANDRY, Dairy Cattle--Breeding. (Cont.)

- Grading-up demonstration.--To demonstrate by the use of purebred sires on common and on grade cows the extent to which the production of dairy herds may be increased and how long it will take to "grow" a dairy herd. N. Dak.
- Management of dairy herd. Breeding for type and production. A study of the effect of using purebred Guernsey sires upon a herd of grade dairy cows. (Grand Rapids Substation) Minn.
- Breeding for milk production.--To breed up a herd of dairy cows that will produce more milk than the native cows, and manage them so that the cows can be milked twice daily independent of the calf. Virgin Islands
- The development of a self-supporting purebred Holstein herd. (Hettinger Substation) N. Dak.
- Breeding purebred Holsteins.--To ascertain if Holstein-Friesians are adapted to Alaska or if they can be acclimated to Alaska conditions. (Kodiak Substation) Alaska.
- Breeding milking Shorthorns.--To ascertain how they are adapted to the climate of interior Alaska. (Matanuska Substation) Alaska.
- Breeding purebred Galloway cattle.--To demonstrate whether or not Galloways are adapted to the Alaska climate. (Kodiak Substation) Alaska.
- Crossbreeding Galloways and Holsteins.--To develop a distinctly Alaskan dairy breed suited to the conditions. (Kodiak Substation) Alaska.
- Testing dairy sires. Ill.
- The transmitting ability of dairy sires, as indicated by the records of their daughters. Ill.
- Measuring the breeding value of dairy sires by the records of their first few A. R. daughters. Ill.
- Investigation of results of use of dairy sires from ancestry of known production in cooperative bull associations. (P) Idaho.
- A study of the effects of the use of dairy sires from dams of known production upon the production of offspring. (P) Idaho.
- A study of the prepotency of the bulls used in the dairy herd. S. C.
- Virility in herd sires. Promotion of virility through feeds and exercise. Oreg.



ANIMAL HUSBANDRY, Dairy Cattle--Breeding. (Cont.)

- The breeding ability of bulls (dairy). Wash.
- Transmitting qualities of Holstein-Friesian sires for milk and butterfat production. Del.
- Difficult breeding in cows and heifers. Promotion of breeding through feeds. Oreg.
- Purebred dairy cows on the dry farm. (Judith Basin Substation) Mont.
- Scrub breeding experiment. Okla.

Calves and Heifers.

- A study of the growth of dairy heifers. Ky.
- Normal growth of dairy heifers. N.J.
- Normal curve of growth of dairy heifers. Oreg.
- Growth and development of dairy calves. Okla.
- A study of the changes that take place in the top-line of dairy calves. N.J.
- A study of the influence of different feeds on growth and development of dairy heifers. S.C.
- Investigation of the rôle of physical condition in artificial feed for calves. (A) Mass.
- Influence of nutrition of heifers and the age of breeding upon their subsequent development. Protein requirements for growth. (A) Mo.
- A study of (dairy) calf rations and normal growth in calves. Wash.
- Winter rations for young dairy stock in Idaho. Idaho.
- Economical winter rations for dairy heifers. Oreg.
- Feeds for wintering dairy heifers under practical farm conditions in Idaho. Idaho.
- To determine the most economical ration for wintering dairy heifers under New Jersey conditions. N. J.
- Growing heifers' winter rations. Alfalfa hay, alone and with supplements of alfalfa silage, rolled barley, and straw. (Union Substation) Oreg.
- Value of legume hays for heifers. Ark.



ANIMAL HUSBANDRY, Dairy Cattle--Calves and Heifers. (Cont.)

- Comparison of feed for (dairy) calves. Iowa.
- A study to determine the feed required and the cost of raising dairy calves. S. C.
- A study of the best methods of feeding calves while receiving milk. Idaho
- A study of methods of raising calves.--Studies of the feeding value of grain and forage sorghum seed for dairy calves. Kans.
- Raising calves with the minimum amount of milk. (Dairy) Minn.
- Minimum milk requirement for raising dairy calves. N. J.
- Rations for dairy calves: (a) Limited amount of whole milk or skim milk, (b) whey as a substitute for skim milk, (c) value of semisolid buttermilk and dried skim milk for calf feeding, (d) importance of ample water supply for calves. Wisc.
- Relative value of whole milk and skim milk for calves when supplemented with a free choice of six feeds in self feeders and alfalfa hay ad libitum. (A) S. Dak.
- The efficiency of buttermilk and skim milk in raising dairy calves. (Grand Rapids Substation) Minn.
- Powdered milk as a feed for calves. Md.
- A calf meal gruel for the rearing of calves. A study to establish a formula of proved value for a milk substitute, and to determine the general principles, chemical, physical, and physiological, on which the formation of a substitute must be based. N.Y. Cornell.
- The relation of vitamins to the growth of dairy calves. Minn.
- Minerals for dairy heifers. Ala.
- The calcium and phosphorus requirements for growing dairy heifers. (P) W. Va.
- Study of the self-feeder in the feeding of yearling heifers. W. Va.

Feeding Experiments, General.

- Studies in feeding milch cows. Okla.

ANIMAL HUSBANDRY, Dairy Cattle--Feeding Experiments, General. (Cont.)

Feeding investigations.--Dairy cattle investigations. (Caldwell Substation)	Idaho.
Maintenance of dairy cows.	(P) Vt.
Maintenance ration for dairy cows.	(A) Vt.
Dairy herd management. Individual feed requirements.	N.Y.State.
Dairy rations.	Utah.
Wide and narrow rations for dairy cows.	Ohio.
Food requirements for growing dairy cattle. Energy requirements for growth.	Minn.
Feeding milch cows during the dry period.	N. J.
Increasing the production of dairy cows by better feeding.	Minn.
The immediate influence of various feeds upon the quantity and quality of milk.	Minn.
Feeding tests (with dairy cows) with crops new to Minnesota.	Minn.
A comparison of home-grown and purchased feedstuffs for economical milk production.	Fla.
Rations for North Dakota dairy herds.--To determine the relative value of home-grown rations for dairy cows.	N.Dak.
Grain rations for dairy cows. (Grand Rapids Substation)	Minn.
The value of feeding grain to dairy cows during the dry rest period.	Idaho.
Experiments with dairy cows. Pasture tests. (Huntley Substation)	Mont.
Acre value of pasture for dairy cows.	Colo.
Dairy pasture experiments.--To determine (a) the extent to which different mixtures of biennial and perennial pasture crops are preferred by dairy animals, (b) which single crop or mixture establishes itself most efficiently under grazing, (c) the survival and rate of increase of brome grass and blue grass in competition with others, and (d) the comparative value of alfalfa, sweet clover, Sudan grass, and other grasses.	N.Dak.



- ANIMAL HUSBANDRY, Dairy Cattle--Feeding Experiments, General. (Cont.)
- Supplementing blue grass pasture for milk production.--To determine the value, for summer milk production, of supplementing grain or grain hay silage to blue grass pasture. Ind.
- A test of Sudan grass as a pasture for dairy cows. (Colby Substation) Kans.
- Sudan grass as an annual pasture for dairy cattle.--To determine the carrying capacity of Sudan grass as a summer pasture for young dairy stock. Ind.
- Feeding and pasturing experiments with dairy cattle. Pasturing tests with Sudan grass, feeding tests with Sudan hay, alfalfa hay, and cane hay. (Fort Hays Substation) Kans.
- Supplemental feeding of cows while on pasture. Iowa.
- The use of succulent feeds for milk production. Iowa.
- A comparison of grain feeding with no grain feeding of dairy cows on native pasture. (Colby Substation) Kans.
- Influence of feeding grain to cows on pasture. Miss.
- A feeding test to determine the effect of pasturing dairy cows without extra grain during the summer season. Ky.
- A comparison of milk production while grazing on summer pasture, with and without grain supplements. (Union Substation) Oreg.
- Roughage as a feed for dairy cows. Nebr.
- Preparation and economic use of hays in feeding dairy cattle. (P) S. C.
- Comparison of eastern Oregon with western Oregon alfalfa hay for dairy cows. Oreg.
- Alfalfa v. native hay for milk production. Wyo.
- Alfalfa hay as sole ration for dairy cattle and its relation to sterility. (P) Nev.
- Western native hay for milk production. (P) Wyo.
- A study of the effect of alfalfa and pasture as an exclusive feed on the growth and milk production of dairy heifers. (P) Wyo.
- The relation of alfalfa meal as a roughage to mastitis in milking cows. N. J.



ANIMAL HUSBANDRY, Dairy Cattle--Feeding Experiments, General. (Cont.)

- Soy-bean/<sup>hay</sup>v. alfalfa hay for dairy cows. Wisc.
- A comparison of the milk-producing qualities of soy bean hay and alfalfa hay. W. Va.
- Napier and Guatemala grasses for milch cows.--To determine the comparative value of Napier and Guatemala grasses as a green feed for milch cows. Guam.
- A comparison of dried apple pomace with beet pulp as supplement to silage in feeding dairy cows. Va.
- A study of roots as a feed for dairy cows. W. Va.
- Value of rice by-products for dairy cows. Ark.
- The comparative value of various silages for milk production. Idaho.
- A comparison of corn silage and sorghum silage for milk production. S. C.
- Sunflower silage with other roughage for dairy cows. Mont.
- A study of sunflower silage as feed for dairy cattle. W. Va.
- Effect of summer soiling on milk production. (Astoria Substation) Oreg.
- Development of a soiling crop system for summer soiling for dairy cows. (Astoria Substation) Oreg.
- Soiling experiments with dairy cows, using alfalfa, clover, corn, and sunflower. Mont.
- The determination of the most economical carbohydrate concentrate to balance the dairy ration in the South. S. C.
- Testing the feeding value of cull beans. Mich.
- Feeding dairy cattle, Comparison of the feeding value of (a) ground Hegari with rolled barley, and (b) cane fodder with cane silage, for milk production. Ariz.
- The effect of peanut meal when fed to dairy cows on the qualities of the butterfat and methods by which this feed may be fed without undesirable effects. (A) Ga.
- Utilization of fruit by-products in the feeding of dairy cows. (Davis Substation) Calif.

ANIMAL HUSBANDRY, Dairy Cattle--Feeding Experiments, General. (Cont.)

- Feeding for advanced registry. Okla.
- Feeding of minerals to dairy cows. Ohio.
- Attempt to ascertain conditions under which it is necessary to supplement rations of dairy cows with minerals. (A) Oreg.
- The relative value of bone meal and raw rock phosphate as sources of calcium and phosphorus when used as mineral supplements to the ration of dairy cows. Mich.
- Mineral problems of dairy cattle in Minnesota. (P) Minn.
- The self-feeder for dairy cows. Ill.
- Return of potash and phosphorus to the soil in the feeding of dairy cattle. S. Dak.

Herd Management.

- Dairy herd management and improvement. (Valentine Substation) Nebr.
- Herd improvement and management under coast conditions. (Astoria Substation) Oreg.
- Maintenance and management. (North Platte Substation) Nebr.
- Maintenance and management of purebred Holsteins. (Hettinger Substation) N. Dak.
- Dairy farm management.--To determine the proper number of animals to be maintained on an 80-acre unit of land and their proper management. (Caldwell Substation) Idaho.
- Breeding and feeding practices. N. Y. State.

Milking Machines.

- The study of milking machines. Iowa.
- Machine v. hand milking. N. Y. State.
- Bacterial content of milk from different types of mechanical milkers. S. Dak.

Milk Secretion and Production.

- Esperimental analysis of the heredity factors determining milk and meat production in cattle. (A) Wisc.

ANIMAL HUSBANDRY, Dairy Cattle--Milk Secretion and Production. (Cont.)

- Physiology of milking.--Study of the nervous and contractible mechanism involved in milking and bearing on milking, especially machine milking. Ill.
- Synthetic capacity of the mammary gland. Wisc.
- The relation of ductless glands to growth and milk production. N.J.
- Investigations into causes of variation in milk and fat production. Iowa.
- A study of the factors influencing seasonal variations in the quality of milk. Md.
- A study of the variation in milk production and in butterfat during the entire lactation period of individual cows. W.Va.
- Curves of the normal production of Holstein-Friesian cows at different ages. A study of normal production in three herds in Wisconsin, Illinois, and New York. N.Y. Cornell
- Late v. early fall calving in the dairy herd.--To determine the best season of the year for the dairy cow to be in the lactation period. Miss.
- Comparing the production record of cows, (a) influence of season of freshening, (b) influence of length of season, (c) influence of gestation, (d) influence of frequency of milking, (e) influence of age. Ill.
- Relation of the dam to quality of offspring. A statistical study of milk yields in dairy cattle of daughters from young cows in comparison with those of daughters of same cows when older. Ill.
- Effect of grain upon milk and butterfat, when cows are on pasture. (Astoria Substation) Oreg.
- The effect of peanut meal when fed to dairy cows on the qualities of the butterfat and methods by which this feed may be fed without undesirable effects. (A) Ga.
- Determination of how the feeding of peanut meal affects the melting point of butterfat in milk. Fla.
- Determination of how the feeding of velvet beans affects the melting point of butterfat in milk. Fla.



ANIMAL HUSBANDRY, Dairy Cattle--Milk Secretion and production. (Cont.)

A study of the relation of water supply to milk flow. Md.

Effect of temperature and humidity on milk production of the dairy cow. N. J.

Studies of "fat-soluble A" vitamin as present in the milk of the four dairy breeds. (A) Nebr.

Milk production of Virgin Islands cows.--To determine the average milk production, percentage of butterfat, and lactation period of cows of the native Virgin Islands type under local methods of management. Virgin Islands.

Effect of diseases in the cow on milk.--To determine the rôle played by milk both in the spread of disease in cattle and causation of unfavorable symptoms of diseases in man. (A) Mich.

The protein and energy requirements for milk production: (a) Protein requirements for milk production; (b) the effects of high and low protein rations on milk production, metabolism, and growth of the animal. (A) Va.

Official Testing and Inspection.

Certified dairy inspections. (Berkeley, San Anselmo, Knightson, and Dixon Substations) Calif.

Supervision of dairy cows' records. Colo.

Advanced registry testing. Okla.

Official testing for advanced registry or register of merit in the State of Idaho. Idaho.

Official testing of dairy cows. Mo.

Official testing of dairy cows in the State. S. C.

Official testing. Wash.

A compilation of the results obtained through the purebred bull associations. Md.

To analyze the relationships between the short time testing and the performance of cattle during lactation. (P) Me.

ANIMAL HUSBANDRY, Dairy Cattle--Protein supplements for dairy cattle.

- Protein trials with dairy cows. (P) Vt.
- Protein feeds for dairy cows. (P) Del.
- Relative value of cottonseed meal and velvet beans. Miss.
- The protein and energy requirements for milk production: (a) Protein requirements for milk production; (b) the effects of high and low protein rations on milk production, metabolism, and growth of the animal. (A) Va.
- The value of ground flaxseed as a home-grown protein concentrate in winter rations. (Union Substation) Oreg.
- Protein feeds for dairy cows. A study of soy bean meal as a protein feed. Del.
- The value of ground soy beans for milk production. Ohio.
- A study of the use of soy bean oil meal, soy bean hay, and soy bean straw for dairy cattle. Ill.

Miscellaneous.

- Growth investigations. (P) Mo.
- Growth studies of dairy animals. Md.
- Standards of growth for dairy cattle. Ho.
- A study of the normal growth of dairy cattle. Idaho.
- A study of the growth of dairy heifers. (Davis Substation) Calif.
- A study of weight in dairy cattle. Nebr.
- Weights and measurements of dairy cattle. Mich.
- Weight of dairy cattle as influenced by pregnancy, age, and methods of handling. Idaho.
- The relation of form to function. (Davis Substation) Calif.
- Relation between form and function of dairy cows. N.Dak.
- The relation of dairy type to milk production. Pa.

ANIMAL HUSBANDRY, Dairy Cattle--Miscellaneous. (Cont.)

Relation of type of cow to production. N.Y.State.

Studies of color pigmentum in the skin of dairy cattle. N.J.

Dairy studies. (Holly Springs Substation) Miss.

Maintenance of a dairy herd. (Scottsbluff Substation) Nebr.

Maintenance of the dairy herd. Wyo.

Physiological studies with dairy cows. (P) N.H.

Temperature variation. Mich.

A study of the herd records of four dairy breeds, with reference to feed, total milk, solids, and fat. Conn.Storrs.

Record of the station herd. Mass.

Dairy farm management.--To encourage the introduction of dairying as a type of farming for this area of the State (Caldwell Substation) Idaho.

Dairy farm management.--To determine the best combination of crops to be grown for a dairy herd. (Caldwell Substation) Idaho.

Repellant sprays for flies on dairy cattle.--To determine the relative effectiveness, cost and general feasibility of promising repellant fly sprays, and the practical value of spraying. Ind.

Value of fly repellants in maintaining summer milk production.--To determine whether the use of fly repellants on cows has any value in maintaining summer milk production and, if so, how much. N.C.

The effect of flies on dairy production and the value of certain fly repellants. (Davis Substation) Calif.



Sheep and Goats.

Breeds and Breeding. (See also pp.335,336.)

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|---|----------|
| Inheritance of fleece characters in purebred and crossbred sheep. Breeding sheep for wool production. | (A) Wyo. |
| Inheritance of the fur qualities of Karakul sheep.  | Tex.     |
| Sheep breeding to develop a fur-bearing sheep by using Karakul blood.                                 | S.Dak.   |
| Sheep breeding problems. (Davis Substation)   | Calif.   |
| Breeding efficiency of sheep.   | Oreg.    |
| Sheep breeding.--To determine the principles involved in fixing certain characters in sheep.          | (A) N.H. |
| Sheep breeding with a view of eliminating the tail.   | S.Dak.   |

ANIMAL HUSBANDRY, Sheep and Goats--Breeds and Breeding. (Cont.)

Sheep breeding.--To ascertain the adaptability of long-wooled sheep to Alaska. (Matanuska Substation) Alaska.

The introduction of purebred sheep. Ky.

Sheep breeding experiments to build up a flock of high class grades from native and grade ewes, using purebred Shropshire and Southdown rams. Miss.

Tests with different breeds of sheep. S. C.

Comparison of Southdown, Shropshire, and Cheviot rams for production of market lambs when used on native ewes. W. Va.

Lamb production: Methods of producing more and better lambs in Nevada range flocks: (a) Use of better bucks; (b) saving bummer lambs, (c) feeding concentrates to ewe bands in winter on the open range, (d) feeding ewes which lamb under shelter to secure a richer and more abundant milk supply. Nev.

To determine the number of ewes per ram for optimum early spring lamb production. Tenn.

A study of the adaptation of the Corriedale sheep to southwestern Texas. Tex.

Ewes, Feeding and Maintenance.

Sheep feeding experiments. (Worland) Wyo.

Winter maintenance of breeding ewes. Colo.

Winter pregnant ewes. Iowa.

Methods of wintering pregnant ewes and fattening their lambs for early markets (creepfeeding lambs). Mo.

Winter rations for breeding ewes. Md.

Studies in sheep production. Wintering breeding ewes. Mont.

Winter rations for breeding ewes. Ohio.

Wintering ewes. Rations before lambing of alfalfa hay, alone and with silage; and after lambing of alfalfa hay, alone or with grain or silage. (Union Substation) Oreg.

ANIMAL HUSBANDRY, Sheep and Goats--Ewes, Feeding and Maintenance. (Cont.)

- Pasturage and silage production for sheep. Study of various mixtures of grasses and clovers; of the effect of grazing upon cultivated grasses under controlled conditions; and of the most desirable methods of planting and irrigating Russian sunflowers. Nev.
- Proportion of roughages to concentrates in the winter rations of breeding ewes. Ohio.
- Soy bean hay and alfalfa hay as roughages in the winter rations of breeding ewes. Ohio.
- Soy bean and alfalfa hays for breeding ewes and young lambs. Ill.
- Comparison of economic value and nutritive effect of corn silage and rutabagas as feeds for wintering pregnant ewes. Wisc.
- "Sheeping-down" corn and other crops. Iowa.

Lambs, Feeding and Fattening.

- Lamb feeding investigations. (Aberdeen and Caldwell Substations) (P) Idaho.
- Lamb feeding experiments. Pa.
- Feeding tests with various rations. (Scottsbluff Substation) Nebr.
- Lamb feeding requirements in the San Luis Valley. Colo.
- Rations for fattening lambs. Colo.
- Rations for fattening lambs. (P) Nebr.
- Rations for fattening lambs.--To ascertain the advisability (a) of adding ensilage to a corn and alfalfa ration, (b) of feeding molasses meal both with and without ensilage, (c) of feeding oil meal both with and without ensilage. Nebr.
- Fattening early lambs for market. Md.
- Fattening lambs in Arizona. Ariz.
- The economic utilization of home grown feeds in fattening lambs. (Prosser Irrigation Substation) Wash.
- Fattening range lambs in the dry lot. Iowa.



ANIMAL HUSBANDRY, Sheep and Goats--Lambs, Feeding and Fattening. (Cont.)

Feeding and finishing range ewes and lambs; (a) Feeding old ewes; (b) pasturing lambs before shipment in the autumn.	Nev.
Fall forage for fattening lambs.	Mo.
Feeding western lambs. Tests of various rations for finishing.	Kans.
Fattening western lambs. Hominy feed v. shelled corn; soy bean hay v. clover hay; clover hay every fifth day v. full feed of clover hay; comparison of types of western lambs.	Ind.
Fattening western lambs on the corn field.	Ohio.
A comparison of western lambs, native Ohio mutton lambs, and native Ohio fine wool lambs as feeders.	Ohio.
Corn field lamb feeding.	Colo.
Growing winter rations for ewe lambs.	Idaho.
Fitting lambs for market at an early age.	(P) Md.
Lamb feeding investigations.--To determine the feasibility of feeding late native lambs for the market.	Ky.
Sheep feeding investigations. Fattening wether lambs.	Okla.
Various types of roughages for fattening lambs. (Davis Substation)	Calif.
Fattening lambs. Alfalfa hay with supplements of barley, wheat, peas and barley, and oats. (Union Substation)	Oreg.
Alfalfa hay and soy bean hay in the winter ration for developing Delaine-Merino lambs.	Ohio.
Value of hay and pasture for carrying lambs for late high markets. (Hermiston Substation)	Oreg.
Pasture yields for lambs.	Oreg.
Rape v. blue grass as summer forage crops for Delaine-Merino lambs.	Ohio.
A study of the comparative gain and economy of gain made by lambs fattened on the grain sorghums v. corn.	Tex.

ANIMAL HUSBANDRY, Sheep and Goats--Lambs, Feeding and Fattening. (Cont.)

Lamb fattening. Different grains used to determine relative value. (Hermiston Substation) Oreg.

A study of the value of certain grains and seeds occurring in grain screenings for fattening lambs.--To secure data on the quantities of the different seeds in North Dakota crops and on the value of the various grains and seeds in screenings as a large part of the concentrates in a ration for fattening lambs. N.Dak.

Linseed meal v. whole soy beans v. cracked soy beans as a protein supplement to corn in the ration for fattening Delaine-Merino lambs. Ohio.

To determine the cost in feed and pasture of raising spring lambs, and the relative values of the different types of management. Oreg.

Hot-house lamb production. Pa.

Comparative method of docking and castrating lambs. Pa.

Effect of castration upon market lambs. (P) Md.

Effect of castration and docking upon gains and market prices of male and ewe lambs. Tenn.

Methods of docking lambs. Ariz.

The effect of protozyme, a commercial product, on the growth of lambs. N.J.

Wool.

A study of the inheritability of wool by market grades.--To secure data on the market grades of wool produced by different individuals and breeds in the college flock and compare with the grades produced by sires and dams. N.Dak.

Relation of age of animal to fineness of wool and mohair fiber. (P) Tex.

Grades and shrinkages of representative samples of Texas wool and mohair. Tex.

Wool and lambing record. Effect of rations on body weight and wool production of ewes; birth weight, growth, and final development of lambs. (Union Substation) Oreg.



ANIMAL HUSBANDRY, Sheep and Goats--Wool. (Cont.)

Determination of the relation of skin folds to weight of fleece on Rambouillet sheep.

Tex.

Wool investigations.

Okla.

Miscellaneous.

Inheritance of horns and wattles in Toggenburg goats.

Tex.

Milch goat improvement.--To determine the milk-producing capacity of the native goat and the improvement that may be expected by the use of purebred bucks from a milk breed such as the Toggenburg. Records of the cost of producing milk will also be kept.

N. Mex.

Land clearing with goats.

Oreg.

Farm sheep management. (Caldwell and Sandpoint Substations)

Idaho.

Management of range sheep.

Mont.

Investigations in wool and sheep management.

(P) Utah.

Methods of managing and feeding the farm flock of purebred sheep.

Wash.

Effect of various factors upon the wool and form of sheep. (A)

Mont.

A study of the secretion of the sebaceous and sudoriparous glands in Rambouillet sheep. (Davis Substation)

Calif.

An economic study of shearing sheep once v. twice a year.

Tex.

Swine.

Breeds and Types, Breeding.

Physiological effect of heterozygosis in swine.

Iowa.

Breeding purebred swine.

Wyo.

Experiments in the "upgrading" and better management of the types of hog found in the mountain districts of Kentucky.

Ky.

Swine breeding (public improvement work).--To improve or upgrade the native swine of the island.

Guam.



ANIMAL HUSBANDRY, Swine--Breeds and Types, Breeding. (Cont.)

- Studies on different breeding systems with swine. Inbreeding v. outbreeding. Iowa.
- Studies of two different breeding systems with swine. Limited inbreeding and outbreeding. (A) Okla.
- Studies in crossbreeding.--To study the effect of crossbreeding swine on (a) size of litter, (b) vigor of crossbreds at birth, (c) rapidity and economy of gains of crossbred pigs. Ill.
- Inbreeding swine as a basis for improvement. (Waseca Substation) Minn.
- The relative value of purebred Duroc and Tamworth swine and the cross between them for economic pork production. (Edgeley Substation) N. Dak.
- Swine breeding (development of improved station breed).--To develop a type of hog suited to local conditions. Guam.
- Hog breeding.--To ascertain how well Hampshire hogs are adapted to interior Alaska. (Fairbanks Substation) Alaska.
- The family sow.--(a) To determine the annual cost of maintaining two purebred sows and one purebred boar and their offspring under general farm conditions where all possible waste feeds are utilized, (b) to promote upgrading of swine in the community by keeping a good purebred boar available for outside service at a nominal charge. N. C.
- Prolificacy of sows, mortality of pigs prior to date of weaning, and relative thrift of pigs.--To study the relation of prolificacy to breed and type; to determine whether large litters mature more market hogs than medium litters; to learn whether the pigs from large litters are as thrifty as those from medium litters. N. Dak.
- Fecundity of swine. The normal sexual cycle and as influenced by unfavorable dietary conditions. (A) Mo.
- A study of swine types covering growth, feed requirements, visceral development, and carcass production, determining differences existing and causes therefor. (A) Iowa.
- Type test with swine. Carcass studies covering killing, dressing, color, shrinkage, yields, cutting and yields, measuring, curing, and related data. (A) Iowa.

ANIMAL HUSBANDRY, Swine--Breeds and Types, Breeding. (Cont.)

- Value of different types of Poland China pigs for market production. Ill.
- Economy of production of lard and bacon hogs. N. Dak.
- Swine investigations. Wiltshire side investigations. Requirements and cost of production. (P) N. Dak.
- Possibilities in producing high quality export bacon in Wisconsin and comparison of rations for bacon production. Wisc.
- Study in the economy of producing feeder hogs. (Coastal Plains Substation) Miss.
- Brood Sows, Maintenance and Management.
- Maintenance of brood sows. Mo.
- Maintaining brood sows. Pa.
- Maintenance of brood sows. Cost and methods of feeding. Mont.
- Wintering pregnant sows. Iowa.
- Swine feeding. Economical winter rations for brood sows. (Union Substation) Oreg.
- Wintering brood sows: A study of the influence of feed, exercise, and degree of fatness of sows during pregnancy--Also the residual effects of the treatment of the sows during pregnancy upon the growth and development of their litters from farrowing till weaning age. Ind.
- Wintering brood sows.--To determine the effect of rations fed during the gestation and suckling periods upon litters, and the value of soy beans as a source of protein in brood sow and pig rations. Ind.
- Sow management and feeding problems. Wash.
- Alfalfa hay as winter feed for brood sows. (F) Del.
- Legume hay v. tankage as protein supplements for brood sows. Relative value of various legume hays in cheapening the winter ration. Influence of the use of these on the size and vigor of pigs produced. Ark.



ANIMAL HUSBANDRY, Swine--Brood Sows, Maintenance and Management. (Cont.)

Influence of velvet beans alone on secretion of milk in brood sows and on condition of litters. Ala.

The effect of plane of nutrition upon immature brood sows. Mo.

Correlation between several physical characteristics and prolificacy in brood sows. (P) Del.

Feeding, General. (See also FEEDING STUFFS AND ANIMAL NUTRITION.)

Growing pigs. (P) Del.

Fattening rations for swine. Pa.

Factors in the summer feeding of market hogs. S. Dak.

Factors in winter feeding of market pigs. S. Dak.

Hog feeding. Various methods of finishing for market.  
(Hermiston Substation) Oreg.

Fattening feeder pigs. Minn.

The effect of various feeds upon gains made and quality of pork produced. Idaho.

A comparison of home-grown and purchased feedstuffs for economical pork production. Fla.

Dry lot rations for swine. Iowa.

Growing and fattening hogs in a dry lot in comparison with those grazed on leguminous and nonleguminous forage crops, while on full grain rations. (Union Substation) Oreg.

Feeding corn to hogs in dry lot with and without supplement. (Torrington) Wyo.

Pig feeding on the dry farm. (Judith Basin Substation) Mont.

Fattening pigs on dry farm grains. (North Montana Substation) Mont.

Rations for pigs at weaning time. Mo.



ANIMAL HUSBANDRY, Swine--Feeding, General. (Cont.)

Relation of better preparation of feeding stuffs and different methods of feeding upon the rate and economy of gain put on by fattening swine.	Mo.
Comparison of the value of native corn as compared with eastern corn in the feeding of hogs. (Torrington)	Wyo.
Rations for fattening hogs. Various rations in comparison with corn and tankage in self-feeders.	Nebr.
Experiments in pork production, including different grain rations for hogs on alfalfa pasture, comparison of heavy and light grain rations, and time of finishing hogs for market. (Scottsbluff Substation)	Nebr.
A comparison of rations containing corn, wheat middlings, buckwheat middlings, tankage 60 per cent protein, and tankage 50 per cent protein and 10 per cent bone meal for swine.	Pa.
Fattening pigs in dry lot on corn v. barley.--To compare the relative economy and efficiency of these two grains.	N.Dak.
Barley v. corn for fattening swine.	Mo.
Barley feeding experiments with hogs.	Ky.
Yellow corn v. white corn for feeding pigs. (North Platte Substation)	Nebr.
The value of white v. yellow corn for hogs. (Torrington)	Wyo.
Hominy feed v. corn for fattening swine on forage.	Mo.
Peanut meal with supplementary feeds for hogs. (A)	Ala.
The value of ground rye fed with certain supplements as a ration for growing pigs.	Minn.
Sunflowers as a feed for fattening swine.	Mo.
The feeding value of wheat by-products for growing and fattening pigs. (Crookston Substation)	Minn.
Pig feeding investigations. Fineness of grinding grains.	Oreg.

ANIMAL HUSBANDRY, Swine--Feeding, General. (Cont.)

- Sweet clover pasture v. alfalfa hay as supplements to garbage,  
for fattening pigs. Ariz.
- Molasses for hogs.--To determine the extent to which the  
palatability of a ration is increased by the use of molasses  
in connection with shorts or barley. Oreg.
- Beet molasses as feed for young hogs. Cooperative work with  
packing houses to determine the value of tankage as a winter  
feed for brood sows and young pigs. Utah.
- By-products for fattening swine. Pa.
- Pig feeding investigations. Waste fruit for hogs. Oreg.
- The use of fruit and fruit by-products in feeding swine.  
(Davis Substation) Calif.
- Feeding value of cull apples, potatoes, and other miscellan-  
eous feeds, for the production of pork. Wash.
- Breadfruit, coconut meal, cowpeas, and tankage for growing  
swine.--To determine the suitability for growing pigs of  
a ration composed of breadfruit (cooked), cowpeas, coconut  
meal, and tankage. Guam.
- Cassava, coconut meal, cowpeas, and tankage for growing swine.--  
To determine the suitability for growing pigs of a ration  
composed of fresh cassava, cowpeas, and tankage. Guam.
- Swine feeding. Screenings for fattening swine.  
(Crookston Substation) Minn.
- Fermented and unfermented feed for pigs. Ohio.
- The value of yeast for feeding swine. Mich.
- Pig feeding investigations. Water necessary for pigs. Oreg.
- The effect of protozyme, a commercial product, on the growth  
of swine. N. J.
- Study in the economy of producing feeder hogs.  
(Coastal Plains Substation) Miss.

Forage Crops, Hogging Off.

- Forage crops for swine. (P) Del.



ANIMAL HUSBANDRY, Swine--Forage Crops, Hogging Off. (Contd.)

- Forage crops for swine. Iowa.
- Forage crops for swine. Mo.
- Forage crops for growing and fattening swine. Ark.
- Forage crops for swine in Delaware. Del.
- Systems of fattening pigs on forage. Wash.
- Comparison of forage crops for swine and of concentrates and supplements to feed on forage. Wisc.
- A study of the residual effects of forage crops for swine. Mo.
- Pasture crops for swine. Mont.
- Hog pasture experiments. (Lightfoot Substation) Va.
- Methods of feeding swine on pasture. Mont.
- Pasture for pigs (rape, clover, rye grass). Oreg.
- Value of pastures for swine.--To determine (a) the value of permanent pasture v. temporary pasture for fattening pigs, (b) the value of a limited grain ration v. a full grain ration (from self-feeder free choice) for fattening pigs on pasture, (c) the length of time required to make a 40-lb. pig weigh 200 lbs. when fed under the above conditions. N. C.
- All-year grazing for brood sows.--To ascertain the practicability, the extent of grazing as to time, and the number of brood sows (variable as to weight) that an acre of land will carry when proportioned with rye and alfalfa for grazing. N. Mex.
- Pasturing crops for pigs. Comparison of all available forage crops for the economic pasturing of pigs.--To determine the ages at which pigs can make most use of green forage crops. A study of the quantity of grain to supply to make the most economic use of green forage crops. N. Dak.
- Hog pasture experiments to find a suitable sequence of grazing crops for hogs and the necessary concentrates to produce fat pork by the end of the grazing season. (Lightfoot Substation) Va.



ANIMAL HUSBANDRY, Swine--Forage Crops, Hogging Off. (Cont.)

- Blue grass, soy beans, sweet clover, and alfalfa pasture for pigs. Ohio.
- Sweet clover pasture for hogs. Ariz.
- Experiments with hogs on dry land pastures. (Huntley Substation) Mont.
- Annual dry land pastures for swine. (Huntley Substation) Mont.
- Perennial dry land pastures for swine. (Huntley Substation) Mont.
- A comparison of Sudan grass pasture with alfalfa pasture for pigs. (North Platte Substation) Nebr.
- Forage crop experiment with swine on different kinds of pasture and fed varying amounts of grain. Mont.
- Feeding on rape pasture for pigs.--To compare (a) Limited feeding, (b) limited feeding followed by full feeding, (c) full hand feeding, and (d) self feeding. Ohio.
- Hog grazing tests with peanuts, soy beans, small grains, alfalfa, and clovers.--To determine the amount of grazing from each and their effect on the quality of the pork. Miss.
- Comparative test of peanuts, sweet potatoes, soy beans, velvet beans, and corn for pork production. S.C.
- Pasture trials and hogging off experiments: (a) Alfalfa pasture; (b) rape pasture. Mich.
- Value of crops when "hogged off".--To determine the amount and quality of pork that can be produced from a given area of feed crops indigenous to these sections of the State. N.C.
- Hogging-off field crops. Idaho.
- Hogging down experiment.--To determine (a) the best crop to hog down, (b) the best combination of crops, without supplements, to hog down, (c) the best combination with supplements, (d) the effect of these crops if any on the production of soft pork, and (e) if so, attempts to harden the carcass by subsequent feeding with corn supplemented with tankage or other highly nitrogenous concentrate. Ky.
- Hogging-off crops. Growing supplements in corn; different protein supplements; mineral supplements. Ind.

ANIMAL HUSBANDRY, Swine--Forage Crops, Hogging Off. (Cont.)

Hogging-off corn. Pa.

Hogging-off corn.--To determine the best size and age of pigs for hogging-off corn and the economy of fattening hogs by this method and the best variety of corn for the purpose; to learn what proportion of the seasons will sufficiently mature corn for it to be available for hogging-off.

N. Dak.

"Hogging-off" immature corn.--To determine the value of "hogging-off" corn in the dough stage.

N. C.

Hogging-off v. pen feeding of corn.

Md.

Fattening pigs in dry lot on barley v. hogging-off corn.--To determine whether corn can be hogged off to advantage by May-farrowed pigs.

N. Dak.

The hogging down of corn as a labor-saving practice on general farms.

N. J.

Hogging-off experiments with peas and corn. (Edgeley Substation)

N. Dak.

Swine feeding. Hogging-off corn and soy beans. (Crookston Substation)

Minn.

Hogging down corn and soy beans.

Mo.

Hogging down corn containing soy beans at various stages of maturity.

Ohio.

Hogging down corn, corn and soy beans, and corn and rape.

Ohio.

Hogging down corn with soy beans and tankage as supplements. (Crookston Substation)

Minn.

Garbage for Hogs.

Garbage for fattening pigs, including garbage alone and with grain, and also slaughter tests.

Oreg.

Mineral Supplements for Hogs.

Mineral supplements for brood sows.

Wisc.

Tests of various rations for finishing hogs. Tests of mineral supplements.

Kans.

ANIMAL HUSBANDRY, Swine--Mineral Supplements for Hogs. (Cont.)

- The effect of adding various minerals to a fattening ration for hogs. Tex.
- A simple mineral mixture for growing and fattening pigs. Ala.
- Effect of acid phosphate and bone meal in mineral mixtures fed with corn and soy bean rations to pigs in dry lot. Ohio.
- The influence of sulphur upon the development of swine, with special reference to the hair growth. Iowa.
- Marl as a source of calcium for swine. Minn.

Protein Supplements for Hogs.

- Protein supplements for pork production. Wash.
- Protein supplements for growing pigs. (P)Del.
- A study of protein selection by swine. N.J.
- A comparison of protein supplements in rations for young pigs following weaning. Minn.
- Protein supplements for swine. The place of protein supplements of animal origin in the feeding of swine in New York State. N. Y. Cornell.
- Protein supplements for swine.--To determine the relative value of various protein supplements. Ark.
- A comparison of various protein supplements for fattening pigs on concentrates and forage crops. Pa.
- Comparative value of Michigan grains for swine feeding. Mich.
- Dry lot hog feeding. Protein supplements to corn for fattening hogs. The effect of different proportions of soy beans on the fat produced, and of different proportions of soy beans and corn on the rate of gain. Ind.
- Supplementary protein feeds for hogs when hogging-off corn. Md.
- Comparison of protein supplements to barley and corn for swine: Skim milk, whey, tankage, linseed meal, and wheat middlings when fed separately and in combination. Wisc.



ANIMAL HUSBANDRY, Swine--Protein Supplements for Hogs. (Cont.)

- Different protein supplements with barley and corn for fattening hogs. Idaho.
- Barley and wheat for pigs when supplemented with tankage. Mont.
- Coconut meal as a protein supplement for hogs.--To determine the value of coconut meal as a protein supplement in fattening hogs and particularly to test its palatability. Oreg.
- Utilization of soft corn for growing and fattening pigs.--To determine the relative efficiency of (a) ear corn silage, (b) soft ear corn, (c) sound ear corn, in the rations of growing and fattening pigs. Ill.
- Cottonseed meal for maintaining, growing, and finishing hogs. Tex.
- Influence of rice polish fed with linseed meal and with tankage to pigs. Ohio.
- Comparison of ground soy beans, cooked soy beans, soy bean oil meal, and tankage as supplements to corn for dry lot feeding. Ohio.
- Soy bean oil meal and soy bean oil as supplements to corn for pork production. (P) Ill.
- Soy beans.--To compare soy beans, soy bean oil meal, and tankage for supplementing corn and minerals for pigs in dry lot. Ohio.
- Soy beans, soy bean oil meal, linseed meal, and tankage for pigs on rape pasture. Ohio.
- Velvet beans for feeder pigs. Ala.
- Comparative test of the value of velvet bean meal, peanut meal, and cottonseed meal as protein feeds for hogs. S. C.
- Additional supplements to tankage for feeding swine with corn in dry lot. Ohio.
- The value of tankage and skim milk as protein supplements for young pigs at weaning time. Minn.
- Tankage requirement for pigs when fed barley on rape pasture. S. Dak.

ANIMAL HUSBANDRY, Swine--Protein Supplements for Hogs. (Cont.)

A comparison of fish meal and tankage with reference to the effect on rate of growth, texture, and quality of carcass (with swine). N.J.

Fish meal v. soy bean meal as protein supplements for fattening pigs.--To determine if fattening pigs will make as rapid and profitable gains on corn supplemented with a vegetable protein (soy bean meal) and mineral as those receiving an animal protein and mineral. N.C.

Fish meal v. fish meal one-half and cottonseed meal one-half for fattening pigs.--To determine (a) the value of cottonseed meal as a protein supplement to corn, (b) if an equal mixture of cottonseed meal and fish meal, when fed to fattening pigs, as a supplement to corn, will cause illness or death in a 60- to 70-day feeding period, (c) if the addition of cottonseed meal will improve the quality of the carcass. N.C.

Fish meal v. tankage for pigs. Oreg.

Fish meal v. tankage as a supplement to corn in rations for fattening swine. Mo.

The use of dairy by-products in the feeding of swine. (Davis Substation) Calif.

Supplemental feeds for swine.--skim milk, tankage, roots, alfalfa, etc. Mont.

Skim milk utilization, and dairy by-product usage, with special reference to Vermont practice with hogs. (P) Vt.

Semisolid buttermilk v. tankage as a protein supplement in rations for fattening swine. Mo.

Comparison of gains made by pigs and chickens on milk feed. Miss.

Soft Pork.

Soft pork investigations. Ark.

Soft pork investigations. Pa.

Soft pork studies. (Coastal Plains Substation) Miss.

Cooperative soft pork investigations. (P)N.C.



ANIMAL HUSBANDRY, Swine--Soft Pork. (Cont.)

Soft pork studies.--To study the effect of corn alone, also corn and cottonseed meal ( 6 : 1 ), as hardening agents following the softening ration X-A modified which has rendered the pigs of 65 and 35 pounds in weight soft. (P) N. C.

Soft pork investigations.--To determine the feeding value of the feeds or feed combinations used in the experimental lots. Ind.

Soft pork investigations. A study of the factors which influence the quality and palatability of meat. (Davis Substation) Calif.

Investigation of the factors influencing the hardness of fat in hogs. (P) S.C.

Effect of peanuts upon the quality of the pork product. (A) Okla.

The use of peanut meal for fattening hogs. Experiments to determine how much peanut meal could be fed to hogs and still produce a hard pork. Fla.

Effect of some southern feeds on the properties of lard. Peanut meal with supplementary feeds for hogs. (A) Ala.

Soft pork. Grazing on peanuts and soy beans and finishing with corn and tankage. Miss.

How soy beans can be fed with corn to avoid soft pork. (P) S.Dak.

The relation of peanuts, soy beans, and velvet beans when fed to hogs to softness and other changes in the pork. (A) Ga.

Soft pork investigations.--To determine the possibility (a) of making firm carcasses from hogs that have been made soft by feeding with such feeds as peanuts, soy beans, mash, rice products, etc., and (b) of producing firm carcasses by using feeds supplemental to the above during the growing and fattening periods. Ind.

Soft pork experiment.--To determine the possibility of making soft carcasses from pigs that are firm, when grazed on soy beans grown with corn, and then making firm carcasses from pigs that have been made soft by grazing on soy beans grown with corn. Tenn.

Soft pork investigations.--The relative dressing percentage of firm and soft hogs and the relative shrinkage through the various packing house processes of the hams, bacons, and shoulders of hogs of different degrees of firmness. Ind.



ANIMAL HUSBANDRY, Swine--Soft Pork. (Cont.)

Soft pork investigations. The value to the consumer of both fresh and smoked products from soft hogs, as compared with the same products from firm hogs.

Ind.

A study of the relative quality of soft pork and hard pork and their products.

(P) Ala.

Miscellaneous.

Methods of growing pigs.

Pa.

Growth studies with swine.

(P) W. Va.

Growth studies with young pigs.

(P) W. Va.

Growing and fattening of Wyoming pigs.

Wyo.

Experiments with hogs on irrigated land. (Huntley Substation)

Mont.

Sanitation of premises and equipment for hogs.

Ky.

Swine sanitation.--To compare pigs raised on clean pasture lots with those raised on lots contaminated with swine parasites.

Ill.

Producing pork for market. (Irrigation Substation)

Wash.

POULTRY

Breeding.

Determination of genetic laws governing results in inbreeding of poultry.	(A)	Mass.
Statistical study of heredity of Rhode Island Red breed of poultry.	(P)	Mass.
Inheritance of certain characters in poultry.	(P)	R.I.
Inheritance studies in poultry.	(P)	Iowa.
Inheritance in egg production. Data on maturity as indicating productive ability, inheritance of size and color of eggs and similar characters.		Nebr.
Inheritance of egg weight in poultry.		R.I.
Inheritance of body weight in poultry.		R.I.
Breeding for resistance to fowl typhoid in poultry.	(P)	Iowa.
The laws governing the breeding of domestic birds.	(A)	R.I.
Age as a factor in poultry breeding.		Mo.
Relative influence of sire and dam on the offspring.		Oreg.
Comparative study of line breeding and outcrossing in poultry. (Davis Substation)		Calif.
Effect of inbreeding and outcrossing poultry.		N.Y. Cornell.
Breeding experiments with poultry to study the effects of selection and inbreeding.		N.Y. State.
Studies on inbreeding with Rhode Island Red fowls. Effects of inbreeding on fowls.	(A)	Wis.
Selection and breeding as factors in increasing egg production. (West Central Substation, Morris)		Minn.
Foundation for experimental work. Breeding for egg production, with a view to distribute breeding stock throughout the State.		Ariz.
Breeding for egg production.		Iowa.

POULTRY--Breeding. (Cont.)

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| Breeding poultry for egg production.   | Mass.   |
| Breeding for egg production.   | Mont.   |
| Poultry breeding. Breeding for egg production.   | Utah.   |
| The breeding of purebred poultry for high egg production.  | Ky.     |
| Poultry breeding and mangement investigations.   | Mich.   |
| Breed improvement.   | Oreg.   |
| Chicken breeding (variety development).--To develop a new variety of chickens well adapted to local conditions.  | Guam.   |
| Breeding and genetic problems involving the improvement of strains of fowls, particularly along production lines.<br>(Davis Substation)  | Calif.  |
| Improvement of mongrel flocks through selected standard bred cockerels. A study of the feasibility of improving mongrel flocks through the use of standard bred cockerels of White Wyandotte, Rhode Island Red, and White Orpington varieties. | Kans.   |
| Poultry experiments. Grading up a farm flock of mongrels by use of pedigreed cockerels. (Northwest Substation, Crookston)  | Minn.   |
| Breeding.--To develop heavy laying strains of standard bred poultry and maintain breed quality.  | N. Dak. |
| Poultry breeding experiments.--To increase egg yield, uniformity of eggs, prepotency of egg production, and breed characteristics.   | N. Mex. |
| Breeding to extend the profitable laying age of the domestic fowl.   | Oreg.   |
| A comparison of breeds as to their efficiency as egg producers.  | Miss.   |
| Poultry experiments. Purebred v. mongrels. (Northwest Substation, Crookston)   | Minn.   |
| Pedigreed v. non-pedigreed hens.   | Miss.   |



POULTRY--Breeding. (Cont.)

Poultry experiments. Trap-nesting and pedigree breeding.  
(Northwest Substation, Crookston) Minn.

Chicken breeding (Public improvement work).--To improve the  
breeding of chickens in Guam. Guam.

Hybridizing for meat production in poultry. (P) R.I.

Poultry breeding and egg laying contest. Ariz.

Chicken breeding (Cantonese).--To test the adaptability of the  
Cantonese to local conditions; to develop an improved station  
strain. Guam.

Improvement of station flock of Single Comb White Leghorns. Del.

Breeding Single Comb White Leghorns and Banded Plymouth Rocks  
for egg production.--To improve egg production by breeding  
and to observe physical characteristics which indicate high  
egg production. Ind.

Breeding and selection of Single Comb White Leghorns. Mont.

The development of a high producing strain of Single Comb White  
Leghorns. N.J.

Chicken breeding (S.C. Rhode Island Reds).--To develop an improved  
strain of pure blood S.C. Rhode Island Reds adapted to local  
conditions. Guam.

Chicks, Brooding and Feeding.

Rate of growth of chicks under normal conditions. Mo.

Growth of chicks in confinement. Ohio.

The influence of nutrition factors on growing chicks. N.Y. Cornell.

Rations for starting chicks. Iowa.

Influence of poorly balanced ration fed to growing chicks as  
affecting their mature live weight, rate of maturity, date  
of laying first egg, egg production, and vigor of progeny. (A) W. Va.

Comparison of various Texas feeds for young chicks. Tex.

Chick feeding and brooding.--To compound rations from feeds  
readily available in the several sections of the State which  
will be suitable for baby chicks. Ariz.

POULTRY--Chicks, Brooding and Feeding. (Cont.)

- Effect of different amounts of different animal feeds upon the mortality, growth, and further development of White Leghorn chicks. Effect of powdered whole milk. Minn.
- The effect of different amounts of fat in the ration upon the growth and health of chicks. Iowa.
- Chicken feeding.--Coconut meal as a part ration for growing chicks, Guam.
- Utilization of by-product eggs from hatcheries. Ohio.
- Protein supplements for growing chicks.--To study the effects of different forms of milk and milk products on the growth of chicks under limited range conditions. Ill.
- A study of the relative value in growth of chicks for the first eight weeks, of condensed buttermilk, dried buttermilk, and meat meal. N.C.
- Liquid milk as a food for young chicks.--(a) Sweet whole milk, (b) sweet skim milk, (c) sour skim milk, (d) buttermilk. Minn.
- The value of sour milk and beef scraps in rations of growing chicks, and the cost of growing chicks. Mo.
- Effect of skimmed milk on growing chicks. Miss.
- Comparison of gains made by pigs and chickens on milk feed. Miss.
- Study of the nutritional requirements of baby chicks reared in confinement. Conn. Storrs
- Comparison of commercial chick starters with home-mixed feeds. Miss.
- Deficiencies of feed fed hens as affecting the vitality of chicks.  
A study of the effect of feeds deficient in one or more essential factors, i.e. ash, protein, fat-soluble A and fat-soluble B vitamins, fed laying hens on the vitality of the chicks. (A) Kans.
- The growth of young chicks as affected by rations deficient in vitamin A. (A) Ohio.
- The vitamin and mineral requirements of growing chicks. (A) Ohio.
- Calcium requirements of chickens. Wis.
- Calcium requirements of growing chicks and laying hens. Iowa.
- Poultry experiments. Drink for brooder chick. (Northwest Substation, Crookston) Minn.



POULTRY

Egg laying Contests, Exhibitions and Routine Records.

- Egg laying contest. Utah.
- Storrs international egg laying contest. Conn. Storrs.
- Improvement of poultry through the establishment of egg laying contests and breed testing stations. N.J.

Egg Laying, Physiology and Correlations. (See also GENETICS, p.14.)

- Inheritance of egg production. N.C.
- Study of inheritance of egg production and associated characters. Ohio.
- The inheritance of size and color of hens' eggs. Ohio.
- The inheritance of weight, color, and texture of shell of eggs in the Single Comb White Leghorn. Idaho.
- Mode of inheritance of egg production in heavy breeds. N.Y. Cornell.
- Mode of inheritance of egg production in Leghorns. N.Y. Cornell.
- Inheritance of egg production. Kans.
- Inheritance of egg production. Oreg.
- Breeding as affecting egg production. Tex.
- A study of methods of pullet selection for egg production. Md.
- Study of types as a basis for selecting pullets for egg production. Iowa.
- Study of type. Relation between high egg production and type or conformation. Oreg.
- External characteristics of the hen as indicating laying capacity. Oreg.
- The relation of external characters, actions, and the distribution of egg production to proficiency and to the quality of eggs of the domestic fowl. N.Y. Cornell.
- The influence of selection by external characters upon second year production and production of progeny. Okla.
- To determine the relation between utility score card characters of pullets and egg production. Mo.



POULTRY--Egg Laying, Physiology and Correlations. (Cont.)

- Forced molting as an economic factor in egg production. (P) Ala.
- Effect of molt on egg production. Iowa.
- Time of molt as an index to productivity of hens. Mo.
- Correlation of sexual maturity to annual egg production. Mo.
- Early laying maturity in relation to good laying. Oreg.
- The analysis of individual egg production records. N.J.
- Study of winter egg production. Miss.
- A study of high winter egg production as a factor in the Single Comb White Leghorn. Idaho.
- Feeding hens to influence hatching power of eggs.--To find the influence of different feeds upon the fertility and hatching power of eggs from breeding hens of the Barred Plymouth Rock and White Leghorn breeds. Ind.
- The relation of certain constituents of sour skim milk to egg production. Idaho.
- The influence of vegetable protein, animal protein, and minerals on egg production. Iowa.
- The influence of feeds of high vitamin content upon the production and hatching quality of eggs and upon the health of the layers. Idaho.
- A study of mineral requirements in egg production. N.C.
- Sources of lime for eggshell formation. Ohio.
- The internal secretion of the domestic fowl as related to fecundity and as modified by environmental influence. N.Y. Cornell.
- Physiological relation between fecundity and yellow pigmentation of fowls. Mo.
- The production factors influencing the interior quality of eggs. N.Y. Cornell.
- Study of watery whites in market eggs. N.J.
- Causes and means of preventing poor quality in market eggs. (Davis Substation) Calif.

POULTRY--Egg Laying, Physiology and Correlations. (Cont.)

Egg investigations.--To standardize market eggs through

- (a) comparison of size, shape, and color of eggs produced by individual hens from pullet to maturity,
- (b) comparison of eggs of dam with those of her progeny, and
- (c) effect of incubation, moisture, and temperature on fertile, infertile, clean, dirty, and washed eggs.

N.Dak.

Time of hatching in relation to egg production.

Mo.

Influence of time laying starts to future egg production.

Mo.

Feeding and Fattening, General. (See also FEEDING STUFFS AND ANIMAL NUTRITION, p. 301.)

Nutritive requirements of poultry with special reference to vitamin requirements, mineral requirements and effect of ultraviolet light and of sunlight.

(P) Wis.

A poultry nutrition project.

(P) Pa.

Nutrient requirements of growing poultry.

(P) Nebr.

Nutritional requirements of poultry--essential dietary factors.

(P) Mo.

Poultry feeding.--To devise a simple ration for feeding poultry.

Md.

Broiler production.--To determine the most satisfactory combination of feeds for the economical production of broilers of high quality, and to determine the most desirable fattening period.

Ariz.

Methods of feeding rations to laying pullets, as to whether it is best to vary the proportion of grain to mash in the winter and summer, and the influence of seasonal changes in the mash on the hatching power and fertility of eggs.

Ind.

Influence of methods of feeding on egg production of pullets.

Ind.

Methods of feeding pullets for egg production.

N.Y.Cornell.

Rations for egg production.--To determine the relative desirability of a simple and a complex ration of equivalent chemical composition.

Ill.

Variety v. simple rations for layers.

Ohio.



POULTRY--Feeding and Fattening, General. (Cont.)

- "White" v. "yellow" rations for poultry. Wis.
- Studies in poultry feeds.--To determine the influence of feeding yellow corn, wheat, white corn plus green feed, and white corn plus cod liver oil, on the vitality, mobility, and life of the spermatozoa. Okla.
- Brewing barley v. hullless barley for laying hens. Mont.
- Value of hullless barley, oats, corn, and peas in egg rations. Mont.
- A comparison of the feeding value of kafir, cane, milo, and corn. Kans.
- Poultry feeding: A comparison of corn silage, buttermilk, grain, and meat scraps, with commercial feeds. Utah.
- The comparative value of certain feeds as supplements to peameal for laying hens. Idaho.
- Alfalfa poultry feeding experiment. (P) S. Dak.
- Corn poultry feeding experiment. (P) S. Dak.
- Comparison of grain sorghums for egg production. (P) Okla.
- Value of rice by-products for laying hens. Ark.
- Effects of feeding high fiber content grains to poultry. S. Dak.
- Experiments in fattening poultry. N. C.
- Poultry experiments. Fattening of poultry for market. (Northwest Substation, Crookston) Minn.
- Experiments to determine the best methods and rations for finishing market poultry. Iowa.
- Crate fattening of roasters. Pa.
- A study of broiler production and management. Pa.
- Poultry feeding.--To study the value and cost of fattening market poultry. N. Dak.
- Effect of consistency of the ration and its importance in fleshing and fattening poultry for market. Iowa.



POULTRY--Feeding and Fattening, General. (Cont.)

- Poultry feeding experiment. (North Central Substation, Grand Rapids) Minn.
- Feeding methods for poultry culture. (P) Me.
- Feeding poultry at high altitudes. (P) Wyo.
- Poultry feeding experiments to test the value of common local feeds fed. N. Mex.
- Poultry feed palatability. Kans.
- The utilization of waste or cheap foods in poultry feeding. N. Y. State.
- Feeding experiments with poultry relating to the importance of coarser vegetable feeds. N. Y. State.
- Feeding demonstrations.--To obtain records of egg production, feed consumed, labor costs, and other items of expense and income on a large flock kept under farm conditions and fed and managed by Purdue methods. Ind.
- Feeding hens for breeding purposes. N. Y. Cornell.
- The value of clam and oyster shells for poultry. Iowa.
- A comparison of ground limestone and pearl grit as sources of shell-forming material. Ky.
- A study of the feeding value of protozyme, a fungous enzyme, in the feeding of poultry. N. J.

Illumination of Hen Houses.

- A study of the methods of poultry house lighting. N. Y. Cornell.
- Poultry feeding and management. Artificial lights.  
(North Central Substation, Grand Rapids) Minn.
- Effect of artificial illumination on breeders. N. Y. Cornell.
- Artificial illumination for pullets. Del.
- Effect of artificial illumination on growth and maturity of pullets. N. Y. Cornell.
- Effect of using electrical lights on laying hens. N. J.

POULTRY--Illumination of Hen Houses. (Cont.)

- The influence of artificial lighting on production, health, and reproduction. S. Dak.
- Artificial light in egg production, using lights morning and night in the laying house. Mont.
- Influence of artificial illumination in the control of egg production, especially with reference to flock segregation according to laying qualities and physical condition. N.Y. Cornell.
- Effect of artificial illumination on early hatched and early maturing S.C.W. Leghorn pullets. Pa.
- The use of artificial light as a means of increasing egg production. Iowa.

Incubation, Fertility, and Hatching of Eggs.

- Inoculation studies. W. Va.
- Incubation experiments. Colo.
- Incubation of eggs. Mont.
- Incubation studies. Time of hatching and its effect on production. Utah.
- The effect of incubation temperatures on the growth and mortality of chicks during the first four weeks of brooding. Ind.
- Incubating and brooding of chicks. Wyo.
- Brooding tests.--To determine the cost and advantages of brooding by different artificial and the natural systems. N. Mex.
- Poultry experiments. Incubation and hatching. (Northwest Substation, Crookston) Minn.
- Incubation tests.--To make a study of the different kinds of incubators and their efficiency under arid conditions. N. Mex.
- Artificial incubation of hen's eggs at high altitudes. (P) Wyo.
- Incubation studies.--To determine the causes contributing to the mortality of artificially incubated eggs. The use of ultra-violet light on eggs and on hens. Kans.
- The carbon dioxide thrown off by eggs during incubation as a measure of the vigor of the embryos and study of certain factors influencing the production of carbon dioxide. (A) W. Va.
- Effect of climatic conditions, especially sunlight, at times eggs are laid, upon hatchability. N. J.

POULTRY--Incubation, Fertility, and Hatching of Eggs. (Cont.)

Effect of length of cycle and position of egg in cycle upon hatchability.	N.J.
The hatchability of eggs.	Mass.
Effect of turning eggs upon hatching.	N.C.
Turning of hatching eggs being held for hatching.	S.Dak.
Effect of soil and washing on hatching.	S.Dak.
Effect of time of hatching eggs on percentage of hatch.	S.Dak.
Studies of variation in the hatching qualities of eggs.	Tex.
Effects of low temperatures upon the chick embryo.	Conn.Storrs.
A study of air currents in incubators.	Conn.Storrs.
Effect of moisture on hatchability of hens' eggs.	Iowa.
Studies on the infertility of eggs.	Mich.
Problems of the mammoth incubator.	Conn.Storrs.

Management, Housing, etc.

Poultry management.--To secure data on the most successful management to be followed for the long continuation of a poultry plant.	Me.
Feeding and management of poultry for winter egg production. (Torrington)	Wyo.
Flock management for egg production.	Wyo.
A survey and study of poultry and egg production under the various systems of management practiced in Maryland.	Md.
To determine the proper management of a farm poultry flock. (Scottsbluff Substation)	Nebr.
Poultry feeding and maintenance. Culling experience. (Grand Rapids Substation)	Minn.
Systems of culling flocks.	Md.
Time of hatch.	Okla.
Date of hatching.--To determine the most desirable range of time within which to hatch chicks for the best results in egg and broiler production.	Ariz.



POULTRY--Management, Housing, etc. (Cont.)

The influence of previous heavy laying on the vigor of the progeny of fowls. (A) W.Va.

The effect of ventilation and confinement on winter egg production and disease prevention. Ky.

The modification of existing poultry houses to provide optimum environment during winter confinement. N.J.

Appliances and methods.-- To devise and improve poultry equipment and methods used in handling poultry. Md.

Protein Supplements.

A study of the comparative efficiency of various proteins in poultry feeding. (A) Nebr.

A comparison of protein supplements for egg production. Ariz.

High protein feeds in mashes. (P) S.Dak.

Vegetable and animal sources of proteins for laying hens. Ark.

Comparison of the feeding values of protein from vegetable sources with protein from animal sources for laying hens. Tex.

Effect of vegetable proteins on egg production. (P) Ala.

The value of certain vegetable protein feeds supplementing sour milk in a ration for laying hens. Idaho

The feeding value of different vegetable proteins in rations for laying pullets. Ind.

Cottonseed meal feeding experiments. (P) N.Mex.

Cottonseed meal for poultry feeding. (P) Okla.

Mungo beans as a protein supplement for growing chickens.-- To determine the value of Mungo bean meal as a protein supplement for growing chickens. Guam.

Vegetable proteins with mineral supplements v. meat scraps for egg production. Ohio.

POULTRY--Protein Supplements. (Cont.)

- Supplements for winter egg production and hatchability. Alfalfa meal and dried yeast. Ohio.
- Animal food in forcing egg production. Mont.
- Sources of animal protein as influencing egg production. N.Y.Cornell.
- Effect of different sources of animal protein on the egg production and condition of laying pullets, with a record of the hatchability of eggs and livability of chicks. Pa.
- Requirement of meat scraps with and without minerals for laying hens. Ind.
- Different amounts of meat scraps in the dry mash for egg production. (With Barred Rocks and White Leghorns) Ohio.
- The influence of meat v. milk upon production and health of fowls. N.C.
- All-egg meal v. meat scraps for egg production. Ohio.
- The value of fish meal v. meat meal in egg production. N.C.
- Comparison of skim milk, fresh buttermilk, tankage, semisolid buttermilk, and crackling scrap as a source of protein for laying hens. Iowa.
- Comparative value of dried, semisolid, and fresh buttermilk on crate fattening poultry for market. Iowa.
- The use of condensed and granulated buttermilk in supplementing the laying mash. Ky.
- A comparison of tankage and condensed buttermilk for laying hens. Ky.
- Varying amounts of meat scrap for supplementing milk in the feeding of poultry. Ky.
- Preservation of skim milk curd for poultry feeding. Ariz.
- The value of sour milk, beef scrap, cottonseed meal, gluten meal, and oil meal in rations for egg production. Mo.
- Grain feeds v. grains plus a 20 per cent tankage mash. S.Dak.
- To study the value of yeast as a partial substitute for animal protein in the rations of growing chicks and of laying hens; also, its effects, if any, on fertility and hatchability. N.Dak.

POULTRY--Turkeys.

Turkey raising. (Scottsbluff Substation) Nebr.

Crooked breastbones of turkeys. (P) Wyo.

Miscellaneous.

An economic study of the poultry industry. A study of the farm industry relations of the poultry industry and of other economic factors in the poultry industry. Kans.

Routine work with poultry. Exact and detailed records of all matters concerning poultry, including autopsies of all birds dying, etc. Me.

The improvement of quality in poultry through the organization and supervision of poultry. N.J.

Plumages and molts of water fowl. N. Y. Cornell.

Quantity production of fly larvae for food for young pheasants. N. Y. Cornell.

A study of the growth of White Plymouth Rocks. Ill.

A systematic study of the blood of the common fowl. Conn. Storrs.

Biometric studies of white rocks. Iowa.

Commercial unit experimental flock. N. C.

Broodiness in poultry. (A) Mass.

Poultry feeding and maintenance. Culling experiment. (North Central Substation, Grand Rapids) Minn.

Poultry feeding and maintenance. Trap nesting. (North Central Substation, Grand Rapids) Minn.



DAIRY PRODUCTS.

Bacteriology of Dairy Products.

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|--|----------------|
| Studies in dairy bacteriology.   | N. Y. Cornell. |
| Miscellaneous investigations in dairy bacteriology. (Davis Substation)   | Calif.         |
| Accuracy of bacterial counts in milk samples.  | N. Y. State.   |
| A bacteriologic study of the accuracy and applicability of the method used for estimating the number of bacteria in milk and for judging the keeping quality of milk.    | Ill.           |
| Comparison of methylene blue reduction test and other tests for determining bacterial content of milk.   | Wis.           |
| Observations on the bacterial counts of milk at hourly intervals (a) when cooled to 70° F. immediately after milking, (b) when cooled to 50° F., (c) when left uncooled. | Conn. Storrs.  |
| Bacteriological examinations of certified milk.  | Calif.         |
| The American high acid organisms found in milk.  | Iowa.          |
| Studies on the bacterial flavors and odors of milk.  | Iowa.          |
| A study of the cause of pinpoint colonies in milk. (Davis Substation)  | Calif.         |
| A study of the iron bacteria in milk. (Davis Substation)   | Calif.         |
| Cheese flora studies.  | N. Y. State.   |
| Study of bacteria in ice cream.  | Mich.          |
| Dairy utensil flora studies: Types of bacteria which survive pasteurization.   | N. Y. State.   |
| The bacterial content of commercial grades of straining cotton. (Davis Substation)   | Calif.         |

DAIRY PRODUCTS--Butter and Butter Making.

- Experiments in the manufacture of butter. (Davis Substation) Calif.
- Factors influencing the composition and quality of butter. Minn.
- Peroxidase enzymes in butter. Minn.
- Factors influencing the market quality of Minnesota butter. (P) Minn.
- The variations in the composition of butter. Pa.
- Moisture contents of hard and soft butters. Determination of relationship, if any, of moisture content to varying solidity, texture, etc. Vt.
- The effect of acidity of cream on quality of butter. Wis.
- Influence of acidity of cream on flavor and keeping quality of resulting butter. Iowa.
- A study of the enzymes in sweet and sour farm skimmed cream as related to the keeping qualities of butter. (A) Ind.
- The effect of lime and soda used as a neutralizer of cream on the water content of butter. Wis.
- The use of neutralizers in the manufacture of creamery butter. Various kinds of neutralizers and their effect upon the quality of the resultant butter, and the fat losses in the butter fat. Ill.
- The effect of neutralization of sour cream on the quality of butter. Wis.
- Comparison of alkali, alcohol, rennet, acid, temperature, and other tests for ripeness of milk (a) for cheese making, (b) for butter making. Vt.
- A study attempting to develop a method of reducing the butter-fat loss in churning. Ill.
- Methods of dairy manufacturing: (a) Effect of clarification on quality of cheese, (b) manufacture of butter from sweet cream. Utah.
- A study of the various factors, especially the biological factors that bring about the development of flavors in butter. Ill.
- Effect of cottonseed and ground soy beans on the quality of butter and its composition. S. Dak.

DAIRY POULTRY--Butter and Butter Making..(Cont.)

- The effect of cottonseed meal on the composition of butter. Iowa.
- Effect of feeding cottonseed meal on the physical and chemical properties of butterfat. Wis.
- The quality of butter as influenced by turnip feeding.  
(Davis Substation) Calif.
- Keeping qualities of butter.--To determine the factors influencing quality, flavor, and deterioration of butter during storage, including influence of salt, decomposition of proteins, pasteurization, and bacterial flora, as well as the influence of temperature, coloring matter, lactose, fat, and enzymes. (A) Mich.
- The effect of hydrogenation on the keeping quality of butter. Pa.
- Effect of starter on the keeping quality of butter. S.Dak.
- The effect of carbon dioxide on the quality and keeping quality of butter and ice cream. Iowa.
- A study of whey butter. N.Y.Cornell.
- Butter oil as a substitute for sweet butter in manufacture of homogenized cream, ice cream, etc. Vt.
- Methods of sampling for the control of butter composition, N.Y.Cornell.
- The making and storing of butter on the farm. N.Dak.
- A study of the production and marketing of butter in Missouri.  
(P). Mo.
- Use of vacuum in the manufacture of butter. (Davis Substation) Calif.
- Yeast and moulds in creamery butter. (Davis Substation) Calif.

Cheese and Cheese Making.

- Experiments in cheese manufacture. (Davis Substation) Calif.
- Comparison of alkali, alcohol, rennet, acid, temperature, and other tests for ripeness of milk (a) for cheese making,  
(b) for butter making. Vt.
- Methods of dairy manufacturing: (a) Effect of clarification on quality of cream, (b) manufacture of butter from sweet cream. Utah.



DAIRY PRODUCTS--Cheese and Cheese Making. (Cont.)

The factors making flavor of cheese under tropical conditions.

The making and curing of cheese under tropical conditions. Porto Rico.

Investigations in cheese making. Cheese ripening studies. N.Y. State.

The pasteurization of American cheese in the vat during manufacture. Wis.

The manufacture of cheddar cheese from pasteurized milk. N.Y. Cornell.

Manufacture of jack cheese from goats' milk.  
(Davis Substation) Calif.

Investigations in cheese making. Neufchatel cheese. N.Y. State.

Manufacture of Roquefort cheese. (Davis Substation) Calif.

Cheese making - (Cottage, Neufchâtel, Whey, Romano, etc.)  
A study of the practice of cheese making with special  
reference to the manufacture of foreign cheeses. Vt.

Investigations in cheese making. Retail cheese package. N.Y. State.

Creameries.

Organization and management problems of local creameries in  
Minnesota. (P) Minn.

The organization and construction of creameries. Iowa.

A study of factors influencing the efficiency of operation of  
country milk plants. (P) N.Y. Cornell.

Experiments in the operation of dairy machinery and equipment.  
(Davis Substation) Calif.

A problem of the Minnesota Cooperative Creamery Association. (P) Minn.

Ice Cream.

Experiments in the manufacture of ice cream. (Davis Substation) Calif.

Problems in the manufacture of ice cream. Pa.

The manufacture and chemical and bacterial study of ice cream.--  
To determine the most suitable and unsuitable methods of  
manufacturing and storing ice cream and the effects of the  
methods of manufacture and storage upon the quality of the  
ice cream. (A) Ind.

DAIRY PRODUCTS--Ice Cream. (Cont.)

- Ice cream investigations. Studies of bacterial, mechanical, and temperature factors in the manufacture, transportation, and storage of ice cream. Kans.
- Studies on ice cream quality. Conn. Storrs.
- The control of yield and quality of ice cream. Mich.
- Study of the factors affecting quality in ice cream. Ill.
- Factors influencing yield and consistency of ice cream. Iowa.
- The effect of each ingredient in the manufacture of ice cream. Mol
- A comparison of beet and cane sugar in ice cream. (Davis Substation) Calif.
- The use of fruit in ice cream. Calif.
- The use of gelatin in the manufacture of ice cream. Md.
- Acidity of ice cream mix. Relation of degree of acidity of ice cream mix to structure, texture, stability, quality, etc., of ice cream. Vt.
- A study of the principles of ice cream making: (a) The influence of percentage of butterfat in the mix upon the yield, body, consistency, and quality of the resulting ice cream, (b) the influence of homogenization and emulsification upon the viscosity of the mix. (A) Nebr.
- Studies in ice cream making. Effect of pasteurization of mixes on overrun and of pasteurization and emulsification on overrun; uniformity of overrun from pasteurized and emulsified mixes. Use of commercial ice cream powders, standardization of mixes for total solids. Bacterial counts on ice cream. Okla.
- Factors affecting the texture of ice cream. (P) Wis.
- Ice cream studies. Factors influencing the viscosity of ice cream. Minn.
- Study of some important factors affecting viscosity of ice cream mix with consequent effect on whipping quality and texture. (P) N. H.
- Investigations in the manufacture of ice cream. Homogenization. N. Y. State.
- A study of the effect of different temperatures of pasteurization and different pressures of homogenization upon the viscosity of ice cream. N. J.

DAIRY PRODUCTS--Ice Cream. (Cont.)

- The effect of methods of homogenization on the quality of ice cream. Pa.
- Investigations in the manufacture of ice cream. A comparison of stabilizers. N.Y. State.
- Factors influencing volume weight in ice cream. (P) Mass.
- A study to determine the weight of a gallon of ice cream for the purpose of determining practical standards. (Davis Substation) Calif.
- Tests for the hardness, jelly value, bacteria, color, odor, solubility, and physical properties of gelatin that can be used by practical ice cream makers. Okla.
- Factors affecting the freezing point and rate of hardening of ice cream. Pa.
- Bacterial study of gelatin and its effect upon the bacterial count of ice cream. Ill.
- A study to devise a simple test to determine the quality of gelatin. (Davis Substation) Calif.
- Butter oil as a substitute for sweet butter in manufacture of homogenized cream, ice cream, etc. Vt.
- The crystallography of ice cream. Wis.
- The effect of carbon dioxide on the quality and keeping quality of butter and ice cream. Iowa.
- Applying the Troy-Tacoma method of testing ice cream for butter-fat to the Babcock method. N.J.
- Ice cream studies. The relation between the gold number of gelatin and the protectiveness afforded the ice cream. Minn.
- The relation between gold number and other tests in the selection of gelatin for ice cream manufacture. Pa.



DAIRY PRODUCTS--Milk. Composition, Handling, and Marketing.

- Study of the composition of milk. . . . . Ill.
- Factors influencing the percentage and quantity of fat in the milk of cows on official test. . . . . (A) Mo.
- Study of the fat globules in milk of hybrids of the Holsteins and Guernsey breeds, and also of these breeds. . . . . Ill.
- Relation of bacteria to the salts in milk and the effect of the condition of the cow on the quality of milk. (Davis Substation) Calif.
- Factors influencing the composition of milk. Influence of feeding cottonseed meal and by-products. . . . . (A) Mo.
- The influence of conditions at parturition on composition of milk and butterfat. . . . . (A) Mo.
- The chemistry of the formation and manufacture of dairy products and factors influencing milk production and the composition and properties of milk. (Title in doubt.)--(a) The colloid chemistry of rennin coagulation, (b) factors influencing the coagulation of milk by rennin, (c) the gold number of the protective colloids of cow's milk. . . . . (A) Minn.
- Market milk investigations.--To study old methods and attempt to develop new ones for the determination of the bacteria condition of dairy products with special reference to market milk. . . . . (A) Mich.
- Clarification v. filtration of milk. . . . . N.Y. State.
- A comparison of the effects of clarification and filtration on market quality of milk. . . . . Mich.
- Effect of filtration v. clarification on the quality of milk. . . . . S.Dak.
- Tests of various types of dairy sterilizers. (Davis Substation) Calif.
- Efficiency of pasteurization.--To study the destructive action of heat on bacteria during pasteurization. . . . . Ill.
- Investigations of thermo characteristics of "in-the-bottle" pasteurizer. (Davis Substation) Calif.
- The comparative efficiency of spray and flood methods of cooling milk. (Davis Substation) Calif.
- Studies of insulated and uninsulated dairy farm cooling tanks. (Davis Substation) Calif.

DAIRY PRODUCTS--Milk. Composition, Handling, and Marketing. (Cont.)

Cream line studies of market milk.	W.Va.
Absorption in dairy products and its relation to churning cream, whipping cream, and the cream line on bottled milk.	Wis.
Clean milk making in small units.--Study of the feasibility of making milk of a grade approximating that of certified milk in a small unit and under Vermont conditions.	Vt.
Factors concerned in the coagulation of milk by heat.	Wis.
A study of factors influencing colors and flavors in milk.	Md.
Studies on the bacterial flavors and odors of milk.	Iowa.
Garlic odor and flavor in milk. (P)	Tenn.
The toxicity of milk.	Iowa.
Biochemical studies of milk.	N.Y.Cornell.
Factors affecting the quality of fluid milk.	Nebr.
Experiments in market milk and testing dairy products. (Davis Substation)	Calif.
A comparison of various commercial tests with the Babcock method for determining the percentage of fat in dairy products.	N.Y.Cornell.
A comparison of the Baltimore and composite methods of making milk tests.	Md.
Testing dairy products. Comparison of tests for milk fat.	N.Y.State.
The chemical and physical properties of powdered milk, and determination of the factors influencing the keeping quality of whole milk powder.	Minn.
The effect of the bacterial content of milk powders upon their keeping qualities.	Minn.
Factors influencing the manufacture of commercial buttermilk.	Okla.
Investigation in the manufacturing of commercial buttermilk; (a) Prevention of wheying off, (b) propagation of commercial cultures.	Wis.

DAIRY PRODUCTS--Milk. Composition, Handling, and Marketing. (Cont.)

- Fermented dairy drinks.--To study the germs concerned in the preparation of the various fermented drinks, the value (physical and otherwise) such drinks may have, and the development of vitamins by the bacteria in such drinks. Ill.
- A study of the effects of freezing and storing in a frozen state upon the physical-chemical properties of milk and milk products. Conn.Storrs.
- The deleterious effects of frozen milk on baby chicks and on the marketability of milk and cream. Mo.
- A study of the Torula forms responsible for the yeasty fermentation in cream. Iowa.
- Control of city milk supplies. N.Y.State.
- Judging the quality of milk. Pa.
- Studies of milk plant practices. N.Y.Cornell.

Miscellaneous.

- Study of iceless refrigerator cabinets. (Davis Substation) Calif.
- Investigations of methods of preventing corrosion of dairy equipment. (Davis Substation) Calif.
- A study of washing powders for dairy use. (P) Mass.

VETERINARY MEDICINE

Anthrax.

- Anthrax. Oreg.
- Anthrax. A study of the disease in general, methods of dissemination, life history of organism, and control. (A) La.
- Anthrax prophylaxis by means of aggressins. (A) Ark.



VETERINARY MEDICINE--Cattle Diseases. (See also specific diseases.)

- Survey of abortion in dairy cattle. Md.
- Studies of bovine infectious abortion. (P) Ga.
- Infectious abortion in cattle: (a) Laboratory studies, (b) study of the cause of infection and methods of control in several herds, (c) oral infection studies. (A) Conn.Storrs.
- A study of immunity and the carrier problem in bovine abortion. (Berkeley Substation) (A) Calif.
- The value of immunizing agents in the control of bovine infectious abortion. (A) Minn.
- Immunizing cattle against contagious abortion. (A) Ky.
- The vaccination of heifers in herds infected with bovine infectious abortion.--To determine the immunizing effect in heifers of breeding age, of subcutaneous inoculation with live cultures of Bacillus abortus. Ind.
- Contagious abortion in cattle.--To determine a means of controlling bovine infectious abortion. (A) Mich.
- Abortion infection experiments with young calves. A study of the location of Bacterium abortum organism in the bodies of calves drinking artificially infected milk, and the effect of the ingestion or withdrawal of colostrum as a factor. (Berkeley Substation) (A) Calif.
- A study of outbreaks of bovine infectious abortion and their control.--To collect data relative to the origin of herd outbreaks of bovine infectious abortion; the relation of the ration fed to abortion; and general sanitary control measures. Ind.
- Studies in abortion disease in cattle. Eradication of abortion disease by isolation. Del.
- Controlling contagious cattle abortion by testing the herd and isolating reactors. Wis.
- The clean and infected herd. (A) Minn.
- A study of abortion in University farm cattle. (Davis Substation)Calif.
- The relative importance of the generative tract as a channel of infection in bovine infectious abortion. (A) Minn.

VETERINARY MEDICINE--Cattle Diseases. (Cont.)

- The serological and complement fixation tests in infectious abortion in cattle. (A) Minn.
- Contagious abortion and sterility in cattle. Wash.
- Investigation of contagious abortion, including the study of sterility as a sequel to abortion infection. (A) Wyo.
- Sterility in cattle. Del.
- A study of sterility. (A) Minn.
- Sterility in breeding cattle. Oreg.
- Studies of retained placenta in cattle. Del.
- Diseases of the reproductive organs of cattle. Mich.
- The function of the corpus luteum. (A) Minn.
- The effect of pituitrin upon delayed parturition, retained fetal membranes, and involution and sub-involution of the uterus. (A) Minn.
- Dysenteric affections of cattle in North Dakota.--To determine the distribution, frequency, and seasonal relationship and the causal relationship of intestinal coccidia to such affections. N.Dak.
- Diarrhea in cattle, with special reference to infectious bacterial enteritis (John's disease), black diarrhea, bloody flux, and diarrhea of parasitic origin. Ky.
- Diagnosis and eradication of John's diseases. Wis.
- Red water in cattle. (Cystic Haematuria) Wash.
- The application of the benzoate renal functional test to nephritis in cattle. Minn.
- Infection of cattle with avian type of Bacillus tuberculosis. (A) Wyo.
- The cause of skin lesions in cattle which have reacted to the tuberculin test. Wis.
- Coccidiosis in cattle. Mont.
- Congenital epithelial defects of calves. Wis.

VETERINARY MEDICINE--Cattle Diseases. (Cont.)

- Cattle loin disease in the Coastal Plains of Texas. (A) Tex.
- Hemorrhagic disease in cattle. (A) Nev.
- Lung worm in calves. W.Va.
- Control of calf lung worm. W.Va.
- Infectious white scours and pneumonia in calves. (A) Minn.
- Salt sickness in cattle. Fla.
- A study of an obscure disease of cattle on the range. (A) Wyo.
- Use of chlorine gas in treatment of infectious mastitis in cattle. Fla.
- Investigation as to the cause of the so-called "alkali disease" of livestock under conditions west of the river. S.Dak.
- Effect of diseases in the cow on milk.--To determine the rôle played by milk both in the spread of disease in cattle and causation of unfavorable symptoms of diseases in man. (A) Mich.
- A study of depraved appetities in dairy calves. Mich.

Goiter and Hairlessness.

- Studies on hairlessness (hypotrichosis) in animals.--To study the inheritance and causes of hairlessness in hairless rats, including studies of the endocrine glands, histological examinations of the skin and hair follicles, etc.; and, if possible, the study will be extended to include the hairless pigs of Mexico. (A) Ill.
- Hairless pigs and hairlessness in newborn animals. Mont.
- Hairless litters.--To determine the cause or causes of hairless litters: To learn whether particular breeds or families of swine are especially susceptible, to study the habits, degree of vigor, longevity, gestation period of hairless litters and the peculiarities of individual hairless pigs, to study the iodine treatment for hairlessness. N.Dak.
- The iodine content of Idaho-grown foods in relation to the prevalence of goiter. Idaho.



VETERINARY MEDICINE--Hemorrhagic Septicemia.

Hemorrhagic septicemia.

Oreg.

Variation of the pathogenicity of members of the hemorrhagic septicemia group of bacilli.

(A)

S.Dak.

A study of the pathogenicity as well as antigenic and biologic properties of the organisms belonging to the hemorrhagic septicemia group.

(A)

Nebr.

Types of hemorrhagic septicemia found in Florida.

Fla.

Hemorrhagic septicemia aggressin.--To determine if natural and artificial hemorrhagic septicemia aggressins of protective value can be produced.

Ill.

Hog Cholera. (See also Serum Production.)

The isolation and cultivation of the specific microorganism of hog cholera and the investigation of methods of treatment based upon a vaccine.

(A)

Ky.

An experimental study of hog cholera and the factors concerned in immunity against the disease.

Mo.

Experimental study of hog cholera virus. Hog cholera exposure experiment.--To determine the length of the period that a hog which has recovered from cholera, may act as a carrier of the disease and to determine the length of time that cholera virus may live outside of the hog's body and the relation of stable flies to the distribution of the disease.

(A)

Ind.

To obtain the percentage of double treated hogs that may later become susceptible to cholera; to find the proper age that pigs may be immunized by the double treatment, and length of time immunity of double treated pigs may be expected to last.

Md.

Experiments on the viability of hog cholera virus.

Mo.

To determine the age at which pigs from immune mothers become susceptible to hog cholera.

Md.

A record of the results of hog cholera immunization at the University Farm. (Davis Substation)

Calif.

VETERINARY MEDICINE--Horse Diseases. (See also specific diseases.)

- Contagious abortion of mares and pyaemic arthritis of foals. Minn.
- Swamp fever (infectious anaemia) of horses and mules. Tex.
- Transmission of swamp fever in horses. (A) Wyo.
- "Leeches" of horses. Fla.
- Pathology and bacteriology of the reproductive organs of the mare and their relation to sterility. (A) Ky.
- Investigation of horse disease in northwest Nebraska.--To determine causative agent. (P) Nebr.

Infectious Abortion. (See also specific animals and Serum Production)

- Contagious abortion. Colo.
- Contagious abortion investigations. Mo.
- Infectious abortion caused by Bacillus abortus Bang. Oreg.
- A comparative study of Bacterium abortum from bovine and porcine sources. Wis.
- Abortion diseases investigations. Studies of pathological lesions. Studies of blood tests and attempts to induce immunity. Kans.
- Control of contagious abortion by agglutination tests. (P) Colo.
- The elimination of Bacillus abortus in milk. (A) Minn.
- Methods of cultivation of Bacillus abortus. (A) Minn.
- The efficiency of anti-abortion vaccines. Ark.

Necrobacillosis

- Necrobacillosis- a study of the various activities of Bacillus necrophorus. (A) Wyo.

VETERINARY MEDICINE--Parasites. (See also ECONOMIC ENTOMOLOGY--  
Mosquitoes, p.290 and Ticks, p.297.)

- Animal parasites. Ky.
- A study of common parasites in animals. Wis.
- The endoparasites of man and domesticated animals. Minn.
- An inquiry into the prevalence, extent of infestation, economic significance, and methods of control of the pathogenic parasites of food animals. (A) Mich.
- General survey of animal parasites affecting domestic animals in Porto Rico. Porto Rico
- Internal parasites of meat producing animals as a factor in the production and quality of meat. (P) La.
- Biology and control of principal cattle parasites in Louisiana. (P) La.
- Life cycle of Moniezia expansa. (A) Wyo.
- Control of cattle louse. Ala.
- Parasites of sheep. W. Va.
- Insects and internal parasites affecting livestock. The blowfly, screw worm, and goat louse. Tex.
- A study of the life history of the kidney fat worm, Stephanurus dentatus, in and out of swine and, in connection therewith, the pathological action on swine. Ala.
- Persistence of ascaris (round worm) infestation in hog lots. Ill.
- Poultry parasites. (Davis Substation) Calif.
- Observations on the occurrence of oocysts of Eimeria avium in the cecal contents of the domesticated fowls. N. J.
- A study of Heterakis perspicillum in poultry. N. J.
- Manson's eye worm of poultry (Oxyuris mansoni). Fla.
- Flukes of the genus Collyriclum as parasites of poultry. Minn.
- A biological study of Dispharagus nasutus Reed, a roundworm affecting game birds. N. Y. Cornell.



VETERINARY MEDICINE--Parasites. (Cont.)

- A study of the Mallophagi infesting the birds of New York State. N.Y. Cornell.
- Horseflies (Tabanidae). Minn.
- Paradichlorobenzene as an anthelmintic. Porto Rico.
- The use of capsules as a medium for drug administration for sheep, with special reference to removal of parasites. Pa.
- Study of derris and related insecticides for control of external parasites of domesticated animals. Minn.
- Studies of fly repellants. Minn.
- Repellant sprays for flies on dairy cattle.--To determine the relative effectiveness, cost, and general feasibility of promising repellant fly sprays, and the practical value of spraying. Ind.
- Value of fly repellants in maintaining summer milk production.--To determine whether the use of fly repellants on cows has any value in maintaining summer milk production and, if so, how much. N.C.
- The effect of flies on dairy production and the value of certain fly repellants. (Davis Substation) Calif.
- Device for applying heat for plant and animal pest control. (Davis Substation) Calif.
- Life history study of the Necator suilla and its possible relation to the problem of human ankylostomiasis in Porto Rico. Porto Rico.

Poisoning and Poisonous Plants. (See also CHEMISTRY p. 4.)

- Forage poisoning. (A) Miss.
- Causes of forage poisoning. Ark.
- Food poisoning.--To prepare an antitoxin for the C type of the botulism organism. Ill.
- The nature of the toxin in some lots of sweet clover hay and silage. Minn.
- Beet pulp and molasses poisoning. Utah.

VETERINARY MEDICINE--Poisoning and Boisonous Plants. (Cont.)

- Poison plants of our grazing ranges. Ariz.
- Poisonous plant investigations.--To determine if Drymaria is poisonous to cattle. N.Mex.
- Poisonous range plants, including Tetradymia glabrata, Atriplex canescens and A. confertifolia, Halerpestes cymbalaria, Artemisia spinescens, and four species of lupines. (A) Nev.
- Loco eradication and loco poisoning. Mont.
- Milkweed poisoning. Colo.
- Poultry Diseases. (See also specific diseases.)
- A study of white diarrhea in chicks. (A) R.I.
- Investigation of white diarrhea in chickens. (P) Wis.
- Studies on bacillary white diarrhea in poultry. Bal.
- Factors causing white diarrhea in poultry. (P) Tenn.
- Bacillary white diarrhea of chicks: (a) Transmission of infection from infected to non-infected hens by association, (b) management at incubation as a control measure. (P) Ohio.
- An investigation of white diarrhea in fowls with special reference to improving methods for its control. Va.
- Bacillary white diarrhea.--To determine the efficacy of the serum agglutination test as an aid in eradicating bacillary white diarrhea. Ill.
- Investigation of bacillary white diarrhea.--To determine facts regarding the origin and spread of bacillary white diarrhea and to study the means of definitely recognizing the disease. Ind.
- A study of bacillary white diarrhea and its relation to egg production, fertility, and hatchability. Mich.
- Genetic studies of resistance of chicks to bacillary white diarrhea. (A) Ill.
- Mortality of chicks caused by white diarrhea in the parent stock. (West Central Substation, Morris.) Minn.

VETERINARY MEDICINE--Poultry Diseases. (Cont.)

- The duration of the "carrier" stage of bacillary white diarrhea reactors to agglutination test for same. N.C.
- Poultry diseases.--(a) To determine the value of vaccination as a means of controlling chicken pox, (b) to study bacillary white diarrhea as it affects the adult bird. Mich.
- Studies of the prevention and control of avian chicken pox by immunization. Va.
- Coccidiosis in fowls Oreg.
- A study of paralysis in chickens.--Relation between coccidiosis and paralysis. (P) N.H.
- Eradication of gapes on the farm. W.Va.
- Studies on the vaccine treatment of roup. (P) Del.
- The value of vaccination with an autogenous bacterin for roup in chickens. (A) Wyo.
- Investigation of colds (roup), canker (avian diphtheria) and chicken pox (epithelioma contagiosum). (Berkeley and Petaluma Substations) Calif.
- The therapeutic efficiency of avian diphtheria, roup, or bird pox vaccines. Mass.
- Relation between adequacy of diet and immunity to roup. Kans.
- Poultry disease investigations. Studies of pure culture bacterial vaccine for roup and fowl typhoid. Studies of white diarrhea. Kans.
- The bacteriophage in the control of fowl typhoid. (P) Del.
- A study of avian paratyphoid organisms. N.J.
- Diseases of poultry, including (a) transmission of avian tuberculosis through eggs of tuberculous fowls, and (b) entero-hepatitis. Minn.



VETERINARY MEDICINE--Poultry Diseases. (Cont.)

- A search for the presence of European fowl plague in Nebraska poultry. Nebr.
- A study of contagious diseases of chicks. N.C.
- The bacteriophage as applied to germ-borne diseases among poultry. N.C.
- A study of the respiratory diseases of the domestic fowl. N.C.
- Investigation of septicemia diseases among fowls in North Carolina. (A) N.C.
- Investigation of parasitic diseases of poultry other than blackhead. (Berkeley Substation) Calif.
- Relation of soil reaction to infectious poultry diseases organisms. N.J.
- Studies of the life histories of the chick tapeworm (Choanotoenia infundibuliformis) and the chick nematode (Heterakis perspicillum) (A) Kans.
- Embryology of cestodes. House flies as an agent in disseminating fowl tapeworm. Kans.
- The life history and methods of control of the chicken nematode, Heterakis papillosa. (A) Minn.
- A study of intestinal disinfectants for poultry. (A) R.I.
- Summer intoxication of poultry.--To determine facts regarding the toxic-like conditions especially prevalent during the summer. Ind.
- Study of a nervous disorder in adult fowl causing paralysis in limbs or blindness. (A) R.I.
- Miscellaneous poultry disease investigations in California, at the Avian Pathology Laboratory at Petaluma. Calif.
- Blackhead in turkeys. (Berkeley, Davis, and Petaluma Substations) Calif.
- Blackhead disease of turkeys. (A) R.I.
- Study of blackhead in turkeys. (A) Conn.Storrs.
- Enterohepatitis or blackhead in turkeys.--Prevention or control of this disease in farm flocks. N.Dak.

VETERINARY MEDICINE--Poultry Diseases. (Cont.)

- The diagnosis of poultry diseases occurring in New Jersey. N.J.
- Investigation of nutritional diseases of poultry.  
(Berkeley Substation) Calif.
- Deficiency diseases in poultry. (P) Pa.
- The influence of castration, sterility, ovulation, and organ  
transplantation on internal secretion in the domestic fowl. (A) Me.
- Poultry disease investigations. Wis.
- Poultry disease and pest control. Eliminating disease and pests  
from the poultry flock. N.Dak.
- Normal hematology of the domestic fowl. N.C.

Serum Production and Biological Products.

- Serum production. Nebr.
- Serum production: Investigation of methods of manufacturing  
Dorset-Niles antihog-cholera serum.--To improve methods  
of producing antihog-cholera serum and to maintain such  
relation with cholera outbreaks and use of antihog-cholera  
serum in the field as will enable the observation of field  
conditions as they relate to hog-cholera vaccination. Ind.
- Serum production.--To determine cost of producing antihog-  
cholera serum. Ind.
- The preparation and distribution of biological products. Ky.

Sheep and Goat Diseases. (See also specific diseases.)

- The immunization of sheep against Blackleg. (A) Mont.
- Management for the control of nodular disease in sheep. Ohio.
- Pneumonia in sheep. Mont.
- Progressive pneumonia in sheep. (A) Mont.
- A study of swell head of sheep and goats. (A) Tex.
- Sheep gadfly. Grub in head. Sheep rot. W.Va.

VETERINARY MEDICINE--Sheep and Goat Diseases. (Cont.)

- The diagnosis of parasitism in Montana sheep. (P) Mont.
- Treatment of lambs infested with stomach worms.--To compare copper sulphate and carbon tetrachloride as to their effectiveness in removing stomach worms from lambs. Ill.
- Life history of Sarcocystis tenella, parasitic in the muscles of sheep. (A) Wyo.
- Life cycle of Thysanosoma actinioides, a common tapeworm of sheep. (A) Wyo.
- Sheep losses in feed lots. Colo.

Swine Diseases. (See also Specific Diseases)

- Abortion in swine.--To determine the efficacy of abortion vaccines in the prevention of infectious abortion in swine. Ill.
- Investigation of cause and control of infectious abortion in swine. Wis.
- Distribution of abortion infection in swine by positive reacting immune carriers. (A) Mo.
- Immunization of sows against infectious abortion and further studies on the etiology of the disease. (A) Ky.
- Hog cholera and closely allied infectious swine diseases: (a) Chemical analysis of blood of swine affected with hog cholera, (b) experiments to determine the virulence and longevity of hog cholera virus in relation to the sixty day expiration date. (A) N.Dak.
- Investigations of hog diseases with special reference to the development of immunity to hog cholera. (A) Calif.
- Diseases of swine with special reference to infectious diarrhea. Ky.
- Study of rickets in swine. Ohio.
- The dietary relationships and pathology of stiffness or "posterior paralysis" of swine. N.Y.Cornell.
- To study the causes and lesions of swine that have posterior body and lumbar paralysis. Ala.



VETERINARY MEDICINE--Tuberculosis.

- Transmissibility of avian tuberculosis to swine and calves.--  
To determine the relation of tuberculosis in fowls to the  
disease in swine and calves. Ill.
- The intertransmissibility of avian and mammalian tuberculosis.  
(A) N.Dak.
- The relation between avian tuberculosis and swine tuberculosis. Wis.
- Part played by avian tubercle bacilli in tuberculosis of farm  
animals. (A) Nebr.
- An inquiry into the possible relation of avian tuberculosis to  
the tuberculosis of swine. (A) Nebr.
- Dairy herd management. Tuberculosis eradication. N.Y.State
- Cooperative experiments in the control of bovine tuberculosis.  
(Berkeley Substation) Calif.
- A study of the causes and means of preventing the spread of  
tuberculosis in cattle and hogs in California. (Berkeley  
Substation) Calif.
- Vaccination against tuberculosis. Wis.
- Tuberculin tests: Studies on artificial sensitization of healthy  
cattle; whether certain types of cases are liable to react to  
one test and not to another; temperature as affected by other  
factors than tuberculin character; intradermal reaction in  
relation to extent and character of lesions; whether the  
intradermal is apt to fail in advanced cases and where the  
resistance of the body has been broken down; the possible  
inhibition of the intradermal reaction by a simultaneous  
thermal reaction.
- The intradermal tuberculin test for detecting tuberculosis in  
cattle. (Berkeley Substation) Calif.
- Tuberculin testing of cows in certified dairies. Calif.

VETERINARY MEDICINE--Miscellaneous.

Insects affecting the health of animals.	Wyo.
A study of fatal hemorrhage, evidently resulting from damaged or spoiled sweet clover hay and silage.	N.Dak.
Physiology of motor gastric digestion in ruminants and the pharmacology and therapeutics of the ruminant stomach.	N.Dak.
The chemistry of the blood and urine of animals affected with specific and obscure diseases.	Minn.
A study of the relation of ozone to animal diseases.	Md.
Diseases of farm animals. Death of animals and cases of serious sickness at University Farm, Davis.	Calif.
Diagnosis of animal diseases. -- To assist veterinarians and stockmen in diagnosing outbreaks of disease, and securing material for investigational work.	Ind.
Laboratory and field diagnosis of animal diseases.	Ky.
Miscellaneous investigations of diseases of animals other than poultry. (Berkeley Substation)	Calif.
Animal diseases.--To investigate important animal diseases as necessity may arise.	Colo.
Venernal form of lip and leg ulceration.	Mont.
The cause of distemper in dogs.	Ala.
A study of the hookworms of the dog and the domesticated fox.	Minn.
The effect of iodine fed pregnant ewes or sows upon the size, vigor, bone, and coat of the offspring.	Iowa.
Investigations of obscure diseases.	Minn.
Grouse diseases.	N. Y. Cornell.
General disease investigations.	Colo.
Miscellaneous veterinary observations.	Mont.
Laboratory diagnosis and examination of specimens. (Veterinary)	Nebr.
Miscellaneous diseases of farm animals.	Kans.

AGRICULTURAL ENGINEERING.

Clearing Land.

- Land clearing investigations. (Upper Peninsula Substation, Chatham) Mich.
- Land clearing investigations: (a) Brush plowing, (b) power requirements for stump removal, (c) studies on time of brushing and seeding cut-over land, (d) use of war salvage explosives in land clearing, (e) factors affecting the efficiency of explosives, and (f) number of cleared acres required in northern Wisconsin to support a farm. Wis.
- Investigations in land clearing methods and equipment: New methods and implements used in clearing land, stump pullers, tractors, and various combinations of methods and equipment, such as dynamite plus the stump puller, dynamite plus the tractor, use of dynamite before and after pulling, use of livestock and of fire, large and small scale clearing under farm conditions. Minn.
- Methods of clearing logged-off hill land and tide lands. (Astoria Substation) Oreg.
- Method of clearing cut-over land. Mo.
- Land clearing with goats. Oreg.
- Investigations in methods of stone removal. Minn.
- Land clearing salvage - stone. Minn.
- Investigations in cost of land clearing.--To determine the cost of clearing, best methods of preparing newly cleared land for cultivation, and the first crops that can best be raised on the various types of soil. (Duluth Substation) Minn.
- Investigations in costs and methods of clearing State lands. Minn.
- Land clearing.--To determine the cost and best methods of preparing cut-over land for crop use. Mich.
- Land clearing: Use of explosives, method for blasting stumps, and cost of burning stumps. Ala.
- Investigations in power necessary for pulling stumps. Minn.
- Investigations in plowing underbrush. Minn.
- Economic limitations of stump removal for pasture. Minn.
- Crop production following clearing of virgin land. Minn.



AGRICULTURAL ENGINEERING--Drainage.

Drainage studies. (Everglades Substation, Belle Glade)	Fla.
Studies in farm drainage. (Delta Substation)	Miss.
*Drainage surveys. (A)	Idaho.
Drainage systems. A study of different practices followed over the State and their effectiveness.	Mont.
The effect upon crop production of surface and tile drainage. (Northwest Substation, Crookston)	Minn.
Comparative value of vitrified clay and concrete pipe for sewers and agricultural drains. (P)	Miss.
Study of various kinds of tile, including size, depth, and distance between tile lines. (Northwest Substation, Crookston)	Minn.
Determination of the relative efficiency of differing depths and spacing of drainage lines. (Northwest Substation, Crookston)	Minn.
Drainage experiment.--To determine the value of tile drainage and the most practical size, depth, and spacing of tile lines.	Ind.
Investigation of causes of failures of agricultural drain tile, the means of obviating such failures and mapping areas where extra precautions are necessary.	Minn.
Drainage of "grease woodlands" to remove alkali and management to restore the structure of such lands.	Oreg.
Study of water table and outflow on "white land" and effect of clover, lime, and manure on percolation.	Oreg.
Drainage and reclamation of tide lands, especially investigations as to drainage systems. (Astoria Substation)	Oreg.
Drainage and improvement of wet lands. Drainage of tide lands.	Oreg.
Drainage investigations. (a) Settling of peat after drainage, (b) the development of a marsh plow for breaking new land, (c) studies in subsoil as a factor in drainage design.	Wis.
Drainage and water control investigations on peat lands.	Minn.

AGRICULTURAL ENGINEERING--Drainage. (Cont.)

- Methods and costs of drainage installation; and correlation of land and crop values with cost of drainage. Minn.
- Drainage.--To improve drainage practice and agricultural conditions. Mich.
- Drainage by pumping from sump or well. Calif.
- Studies in various phases of drainage in California. Calif.
- Reclamation after drainage as one of the factors underlying the economic use of water in irrigation. (P) Idaho.
- Reclamation of overflow lands. Idaho.
- Methods of improving permeability in soils of high colloidal content. Oreg.

Farm Buildings and Equipment.

- Farm building.--To study the types of frame and planning of farm buildings from an economic and sanitary standpoint. Mich.
- Farm buildings.--To study farm buildings for greatest efficiency in plan, sanitation, economy of construction and appearance, and to develop plans for same. Ill.
- Investigations of farm buildings. Minn.
- Farm building plans. Ark.
- Farm structures. N.Dak.
- Rural home design for the warm interior valleys of California. (Davis Substation) Calif.
- Investigation of cheap shelters for the farm straw sheds. N.Dak.
- Farm building ventilation. Minn.
- Heating and ventilating of homes, including installation and operating data. Minn.
- Humidifying air in buildings. Colo.
- Structures and building equipment for fruit and vegetable farms. (Davis Substation) Calif.

AGRICULTURAL ENGINEERING--Farm Buildings and Equipment. (Cont.)

Masonry arch barn construction.	Iowa.
Equipment for livestock feeding and management.	Iowa.
Economic arrangement and rearrangement of dairy barns.	N.Y. Cornell.
Structures and buildings equipment for California dairy farms. (Davis Substation)	Calif.
A study of dairy barn ventilation.	N.Y. Cornell.
Investigations of dairy barn floors.	Iowa.
A comparison of different stalls from the standpoint of economy of production and the production of clean milk.	Wash.
Creamery buildings.	Iowa.
The equipment for storing and handling of manure. (Davis Sub- station)	Calif.
Experimental silos. (Judith Basin and North Montana Substations)	Mont.
Treatment to make masonry silo walls impervious.	Iowa.
Trench silo investigation.	N. Dak.
Use of explosives in constructing the trench silo.	N. Dak.
Design of hog houses for California farms. (Davis Substation)	Calif.
Hog houses and equipment.--To determine the best type of hog house, the relative merits of individual and community houses, the value of sunlight, and the placing of windows and ventilation.--To prepare plans for same.	Ill.
Poultry housing.	Ariz.
Poultry housing: Economical and suitable design of poultry farm building equipment. (Davis Substation)	Calif.
Poultry house ventilation and construction.	Nebr.
Ventilation of poultry houses.	Ind.
Ventilation of poultry houses.	S. Dak.
Comparison of forced draft type of ventilation with the type of ventilation now furnished by the New Jersey multiple unit house.	N.J.



AGRICULTURAL ENGINEERING--Farm Buildings and Equipment. (Cont.)

- Air requirements of poultry. A study of ventilation of different types of poultry houses. Iowa.
- Poultry houses and equipment.--To study poultry houses under varying conditions, to develop new types of poultry houses, and to study light and ventilation in poultry and egg production. Ill.
- Factors governing temperature and humidity of poultry buildings, with special reference to their effect on the health of males and the egg production of females. N.Y. Cornell.
- The harvesting and storage of ice. Iowa.
- Masonry water tanks. Iowa.
- Investigation of rammed earth construction. N. Dak.

Farm Machinery.

- Farm machinery.--To study the various farm machines with a view to increasing their efficiency and determining their adaptability. Mich.
- Soil tilling machine.--To devise method of direct soil pulverization--possibly through use of rear power takeoff of tractors--in place of plowing, disking, clod-crushing and harrowing. Ind.
- Experimental methods and machinery investigations. Iowa.
- Power machinery.--To study the operation and cost, efficiency, and adaptability of stationary engines, tractors, and accessories. Mich.
- Farm machinery survey. Nebr.
- A survey of farm machinery conditions in Arkansas, including types of machinery used. Ark.
- A study of economical machinery equipment for typical farms in the several distinct farming regions of Virginia. Va.
- Standardization of farm machinery. Iowa.
- Draft test of farm machinery. Iowa.
- Draft of tillage implements. Nebr.

AGRICULTURAL ENGINEERING--Farm Machinery. (Cont.)

Draft of farm implements. Farm power.	Mont.
Investigations to determine the draft of various farm implements and the cost of different operations with them.--To determine the draft of various tillage and other farm implements, the effect of different soil types on draft, and the effect of the different treatments of soils on the draft of various implements, also to determine the cost of different operations. The draft of a single disk per foot of width. Effect of single and of double disking before plowing.	Mo.
Plow draft studies.--To study the draft required for plowing the different soil types and the effect of crop rotation and soil treatment in the draft.	Ill.
Plowshare wearing tests. (Davis Substation)	Calif.
The draft of wagons.	Mo.
An economic study of the small combine.	Mont.
Threshing machine studies.-- (a) Efficiency of grain separators, (b) relative merits of large and small threshing rings, (c) efficiency of custom and cooperatively owned outfits, (d) to investigate threshing rings.	Ill.
Static electricity as a probable cause of smut explosions and threshing machine fires.	Wash.
Tractor farming.	Mont.
Investigations of farm tractors.	Minn.
Economic study of farm tractors.	Mont.
A study to determine the fundamental factors influencing traction of wheel tractors. (A)	Ala.
Tractor tests.	Nebr.
Testing fertilizer machines.	N.J.
A study of limestone spreaders.	Iowa.
An investigation of limestone and fertilizer spreaders.	Iowa.

AGRICULTURAL ENGINEERING--Farm Machinery. (Cont.)

- Power requirements for belt machinery. The design and accessories of silo fillers, threshing machines, and other belt-driven machinery as affecting power requirements. Speed as a factor of efficiency. Wis.
- Development of a more efficient seeder for small seed. (P) Ga.
- Silo filling studies. A study of the factors affecting economy in filling silos, cost and amount of labor required. Ill.
- A study of machinery for applying copper carbonate dust to seed wheat. (Davis Substation) Calif.
- A study of the anti-freezing properties of solutions of honey and other sugars in the cooling systems of automobiles and other internal combustion engines. N.Y.Cornell.
- Bearing wear as affected by the character and condition of the lubricant. (Davis Substation) Calif.
- A study of some of the properties of several commercial brands of lubrication oils for internal combustion engines. N.Y.Cornell.
- Reclamation and utilization of used crank case oil from farm engines. (Davis Substation) Calif.
- A study of dust and air separation and air cleaners for internal combustion engines. (Davis Substation) Calif.
- A study of tandem horse hitches.--To determine the practicability of various sizes and types of tandem hitches and the best dimensions for the various parts of which they are constructed. Ill.

Farm Power.

- Farm power studies. Ill.
- The relation of electricity to agriculture. Idaho.
- Relation of electricity to agriculture. Mo.
- The relation of electricity to agriculture. N.H.
- Relation of electricity to agriculture. (P) S.Dak.
- Relation of electricity to agriculture.--To determine practical means of supplying electric power and its adaptation to farm work. Ind.



AGRICULTURAL ENGINEERING--Farm Power. (Cont.)

The use of electricity on the farm.	Mich.
The use of electricity in agriculture.	Wash.
Utilization of electricity in agriculture.	Minn.
The use of electricity on a fruit farm.--The application of electric power to fruit production, as water supply, spraying, refrigeration, irrigation, etc.	Ind.
The application of electricity in the farm home. (P)	Iowa.
Study of electric power used on farms.	Ill.
The availability of electric power on the farm.	Wis.
A study of the electrical engineering phase of the general project dealing with the problems of bringing electric power to the farm.	Ind.
A study of rural electrification in California. (Davis Substation)	Calif.
Use of electricity: (a) Hoisting hay, (b) elevating grain, (c) elevating shavings, (d) grinding grain.	Oreg.
A survey of present electric light farm groups, with special reference to factors which have limited the adaptation of electric power.	Ind.
A study of an electrified farm community consisting of approximately ten farms in northern Indiana.	Ind.
A study of the cost, upkeep, and general utility of an isolated electric power plant.	Ind.
Hydroelectric farm plants.	Minn.
Study of the horse as a motor.	Iowa.
Wind power electric lighting plants.	Minn.
A study of the power and labor factors involved in general farming in Pennsylvania and how they may be advantageously manipulated by engineering procedure. (P)	Pa.
Power requirements of dairy machinery. (Davis Substation)	Calif.
Power consumption of ice cream freezers. (Davis Substation)	Calif.

AGRICULTURAL ENGINEERING--Farm Water Supply, Sewage Disposal, and Sanitation.

- Development of farm water systems. Ark.
- Efficiency tests of electric-driven water systems, including operating costs. Ill.
- Treatment of alkali and other waters for domestic use. Colo.
- Sewage disposal. Mont.
- Farm sewage disposal. Minn.
- Rural sanitation: study of septic tanks and disposal systems. (Davis Substation) Calif.
- Investigation of the biology of sewage disposal.--To find out how sewage may be disposed of with a reduced amount of water and end product containing the waste materials in a commercial form. N.J.
- Investigation of farm septic tanks.--(a) Relation of length, width, and depth of tank to efficient operation, (b) most efficient size for a given quantity of sewage, (c) relative efficiency of the single-chamber tank and those of more than one chamber, (d) flow of farm sewage. Ill.
- Chemical, bacteriological, and zoological studies of the Imhoff tanks. (Sewage Substation) N.J.
- An investigation of sanitary conditions on farms and experiments to determine the best types of sanitary equipment.--To determine the actual sanitary conditions as they exist on typical farms, and the economy and efficiency of different kinds of sanitary equipment. Mo.
- The efficiency of a latrine devised at the experiment station in the control of hookworm infection among the laborers at the station. Porto Rico.
- Device for applying heat for plant and animal pest control. (Davis Substation) Calif.

Irrigation.

- Irrigation investigations. Mont.
- Use of irrigation water. Wash.
- Conditions governing the application of irrigation water. (P) Idaho.
- Principles of soil moisture in relation to irrigation. (Davis Substation) Calif.

AGRICULTURAL ENGINEERING---Irrigation. (Cont.)

- Soil moisture capacity for the root zone as a guide to time and amount of irrigation. Oreg.
- A study of impermeability in certain irrigated soils. (A) N.Mex.
- Feasibility surveys. Surveys of proposed irrigation and proposed drainage projects to determine their feasibility agriculturally. Oreg.
- Irrigating waters and soils. A study of the irrigating waters and soils of the State. Ariz.
- Relationship of stream discharge to precipitation, with special reference to forecasting the supply of water for irrigation from seasonal surveys of snow cover on mountain watersheds (to be restricted for the present to the Logan River Drainage basin.) (P) Utah.
- Value of supplemental irrigation in the Willamette Valley. Oreg.
- Studies in the reclamation of certain desert soils under irrigation from artesian wells in the Las Vegas Valley of southern Nevada. (P) Nev.
- Community irrigation movements in California. Calif.
- Irrigation investigations with field crops. (Davis Substation) Calif.
- Irrigation of alfalfa. Calif.
- Irrigation practice at Greenville - Sugar beets, potatoes, oats, and alfalfa. Utah.
- The irrigation of market garden crops with regard to profitability. Tenn.
- Irrigation of bearing walnut groves. (Citrus Substation, Riverside) Calif.
- Irrigation of an old almond orchard for the purpose of rejuvenating the trees. (Davis Substation) Calif.
- A study of the irrigation requirements of prune, apricot, peach and walnut trees. (Davis Substation) Calif.
- Contour irrigation of orchards. (Davis Substation) Calif.



AGRICULTURAL ENGINEERING--Irrigation. (Cont.)

- Overhead irrigation of strawberries.--To study costs and profits in the use of an overhead irrigation system in strawberry growing. Ill.
- Irrigation experiments. Investigations to determine best length and width of borders for "border irrigation." (Hermiston Substation) Oreg.
- Experiments in distribution of water and improvement of irrigation practice.--Check furrow and strip border method, kind of soils, width and length of border or furrow, preparation cost, irrigation head, moisture stored. Oreg.
- Border irrigation. (Irrigation Substation) Wash.
- Evaporation and duty of water. (A) Ariz.
- Duty of water. Factors affecting the movement of soil moisture. (P) Mont.
- The duty of water as one of the factors underlying the economic use of water in irrigation. Idaho.
- Duty of water in irrigation in Sacramento Valley. (Sacramento Valley Substation) Calif.
- Duty of water for field crops in Sacramento Valley. (Sacramento Valley Substation) Calif.
- Duty of water for selected crops. (Aberdeen Substation) Idaho.
- Duty of water investigations. Studies as to duty of water for different soils and crops on the main irrigated sections of Oregon. Oreg.
- Irrigation experiments. Duty of water for major crops with varying depths of application and applications at different intervals. (Hermiston Substation) Oreg.
- Duty and effect of duty of water on alfalfa. (A) N.Mex.
- Duty of water. Amount of irrigation water for best results with wheat, oats, barley, peas, alfalfa, sunflowers, and other less important crops. (Burns Substation) Oreg.
- Duty of water studies on cabbage, potatoes, corn, alfalfa, and grapes. N.Mex.

AGRICULTURAL ENGINEERING--Irrigation. (Cont.)

Duty of water on grapes.--To determine the best amounts of water to use and the best time of application.		N. Mex.
Pumping for irrigation in California.		Calif.
Pumping for irrigation, canal improvement, and ground water investigations.		Utah.
Cost of pumping irrigation water. Laboratory test.		Mont.
An investigation of irrigation pumping machinery.	(A)	Ariz.
Pumping from wells.		Mont.
Sprinkler irrigation.		Calif.
Ground water development.	(P.)	Utah.
Ground water investigations. Principles of ground water recharge, movement, and escape or use, especially escape through transpiration.	(A)	Ariz.
Ground water studies in the Mesilla Valley, New Mexico.-- To determine the cause of the rise of the ground water, rate of rise, and approximate damage done.		N.Mex.
Ground water studies in the Middle Upper Rio Grande Valley, New Mexico. Preliminary investigation for the purpose of determining the source of seepage water, location of drains, size of drains, and assistance towards the organization of drainage districts.		N.Mex.
Use of irrigation water on the University Farm including observations on the fluctuation of the underground water table. (Davis Substation)		Calif.
Rainfall supplemented by underground waters in the production of crops of low water requirements.	(P)	N.Mex.
Seepage in the Gallatin Valley. Study of underground water levels.		Mont.
Water supplies and irrigation in Cochise County.		Ariz.
Composition of irrigation waters of intermountain region.		Utah.
Measurement of water as applied to irrigation.		Colo.
Studies on an inverted sand filter for desilting turbid waters for irrigation purposes.	(P)	Ariz.



AGRICULTURAL ENGINEERING--Materials of Construction.

Preservative treatment of fence posts.	Iowa.
Preservative treatment of fence posts.	Minn.
A study of the methods of prolonging the service of wood fence posts.	Mo.
Investigation of the relative durability of fence post timbers.	Ohio.
Fence posts.--Durability and general suitability of available kinds and types of posts. (Davis Substation)	Calif.
Durability of posts and methods of fencing in vineyards.	Ark.
Relative durability of creosoted fence posts treated by (a) brushing, (b) dipping, and (c) the open-tank method of creosoting, and set in an experimental line in one of the fences bounding a university woodlot.	N.Y.Cornell.
Periods required to secure penetration of creosote oil in fence posts of common species of wood when treated by the hot-bath and cold-bath methods.	N.Y.Cornell.
Fence post treatment with various chemicals, and charring.	Mont.
Comparison of fence posts.	Minn.
Effect of structure, time of cutting, and method of seasoning of white cedar on the penetration of preservatives.	Minn.
The rots of cedar posts and poles.	Minn.
Shingle experiment.	Pa.
Preservative treatment of shingles.	Iowa.
Shingle nail experiment: Lasting qualities of Western Red Cedar shingles fastened with different kinds of nails.	Pa.
Roofing materials: Tests of prepared roofing.	Iowa.
Effect of alkali on Portland cement.	Mont.
The effect of beet pulp on Portland cement concrete and mortar.	Colo.
Concrete blocks for farm buildings.	Iowa.
Minor tests of farm equipment and materials. (Davis Substation)	Calif.
Road materials of Colorado.	Colo.



AGRICULTURAL ENGINEERING-Miscellaneous.

Artificial hay and grain drying.	Wis.
Investigations of the utilization of stump wood for fuel.	Minn.
Miscellaneous engineering observations.	Mont.
Influence of red rot on the composition of sugar cane.--To ascertain the effect of red rot on the yield and color of sugar cane products.	(A) La.

AGROTECHNY

Sugar and Sirup.

A study of the deterioration of sugars as affected by the process used in their manufacture, and by the precautions taken for its prevention.--To determine the conditions upon which the manufacture of sugar conforming to the "factor of safety" depends.(A) La.

Microbiological study of the deterioration of cane sugars.--To determine the rôle played by the various groups of micro-organisms in causing the deterioration of sugars and to ascertain the factor of safety that must be conformed to in order to prevent their activities. (A) La.

Cane Juice clarification investigations.--To study the effect of non-sugars, especially coloring matters, occurring in the juice of cane or formed during the process of manufacture, on the yield and color of the products, and to devise methods for obtaining maximum yields of white sugar. (A) La.

Cane sirup. (P) La.

Maple sirup investigations. Mich.

Miscellaneous.

Maple sugar production and marketing. (P) Vt.

Beet sugar. (P) La.

A study of the production of alcohol from the residual sugars in bagasse prior to its use for manurial purposes. (A) La.

RURAL ECONOMICS.

Cost of Production and Accounting.

Cost of production studies.		Iowa.
Cost of producing farm crops (products).	(P)	Nebr.
Cost of production studies: Enterprise records, complete cost records, and general financial records.		Oreg.
Cost of producing farm crops.		Nebr.
Cost of production of farm products.		N.J.
Cost of producing farm products under farm conditions.		Mo.
A study of the cost of producing farm products on representative farms in central and western Kentucky.		Ky.
Costs and methods of producing farm products in Putnam County, Ohio.	(P)	Ohio.
Cost of producing corn, wheat, oats, and hay in Medina and Greene Counties, Ohio.	(P)	Ohio.
To determine the cost of certain crops from the standpoint of man and horse labor expended. (Caldwell Substation)		Idaho.
Route study of farm business and cost of production.	(P)	S.C.
Detailed farm accounting and the study of costs in the production of crops and livestock on 26 farms in the irrigated districts of Weld County.	(P)	Colo.
Influence of cropping systems on production costs.	(P)	Utah.
Forage enterprise, cost, and efficiency study.	(P)	Oreg.
Cost of irrigation of rice in Arkansas.		Ark.
Cost of grinding limestone for agricultural use.	(P)	Tenn.
Farm cost accounting.		Mo.
Farm cost accounts.		W.Va.
Complete cost accounts.		N.Dak.

RURAL ECONOMICS--Cost of Production and Accounting. (Cont.)

Farm and household accounting.	Ark.
Cost accounting investigations on Minnesota farms.	Minn.
Cost accounting studies on Mississippi farms.	(P) Miss.
Cost accounting investigations on Montana farms.	Mont.
Complete cost accounts on New York farms.	N.Y. Cornell.
A study of the factors which influence the cost of producing cotton, corn, small grain, hay, and other field crops. (P)	S.C.
Cost of producing cotton.	Tex.
A study of farm organization, methods, and practices, and cost of production of farm products in a typical blackland cotton-farming area of Texas.	(P) Tex.
A study of operating costs and practices of cotton gins in North Carolina.	(P) N.C.
Production cost and carrying capacity of grass pastures in western Nevada.	(P) Nev.
Cost of producing soy beans.	Ind.
A study of the cost of producing tobacco in Kentucky.	Ky.
Cost of producing wheat on dry farms of Columbia Basin.	Oreg.
Cost of producing fruits.	Minn.
Cost of fruit and vegetable production. Cost of developing an orchard from the time the trees are set out to maturity, and the annual cost of growing and harvesting fruits and vegetables.	Ill.
A study of costs and methods in marketing canteloupes in the San Luis Valley.	Colo.
Pear enterprise cost and efficiency study.	(P) Oreg.
Cost of prune production.	Oreg.
Prune enterprise cost and efficiency study.	(P) Oreg.



RURAL ECONOMICS--Cost of Production and Accounting.(Cont.)

Factory costs of canning and distribution.	(P)	Md.
Cost of maintaining brood mares.		Miss.
The cost of horse power, including feed, shoeing, harness depreciation, and repair, bedding, and labor for feeding and care.		Oreg.
Cost of work horse power on California farms. (Berkeley Substation)		Calif.
Cost, methods, and practices of marketing livestock.	(P)	W.Va.
Cost of producing range cattle.	(P)	Nebr.
A study of range organization, methods, and practices and costs of range livestock production in the Edwards Plateau region of Texas.	(P)	Tex.
Cost of production of beef cattle.--To determine the cost of producing beef cattle up to one and two years of age. (Columbia Substation)		Tenn.
Cost of production of purebred beef cattle.		Ark.
Cost of raising purebred cattle. Complete records on the growing of purebred heifers to breeding age.		Oreg.
Cost of fattening cattle and the relation of the enterprise to the farm business.		Nebr.
Cost of maintaining a breeding herd of beef cattle in barn and on pasture.		Miss.
Economic beef production investigation.		Ark.
Beef market requirements in relation to cost of production.	(P)	Oreg.
Dressed beef record. Cost of production. (Union Substation)		Oreg.
Cost of production and method of breeding, feeding, care, and management of baby beef.		N.Dak.
Cost and methods of producing beef cattle and sheep on the range.	(P)	Colo.
Sheep raising: Cost of production. (Sandpoint Substation)		Idaho.

RURAL ECONOMICS--Cost of Production and Accounting. (Cont.)

Studies in the cost of production of lambs in New Jersey.		N.J.
To determine the cost in feed and pasture of raising spring lambs and the relative values of the different types of management.		Oreg.
Production costs in dairying.		Utah.
Studies of dairy farming costs.	(P)	Vt.
Cost factors in raising calves and in handling producing herds under different systems of management.		Wash.
Cost of raising young dairy stock.		Ark.
Cost of growing dairy heifers.		Iowa.
A study to determine the feed required and the cost of raising dairy calves.		S.C.
Crop production based on feed production for a dairy herd. Records of yield and cost of production. (Hettinger Substation)		N. Dak.
Costs of dairy production and processing and marketing procedures.	(P)	Vt.
Cost of milk production on 550 farms.		N.Y. Cornell.
Cost accounting: The cost of milk production on Wisconsin farms.		Wis.
Cost of milk production in the station herd.		Del.
Cost of production of milk and butterfat.		Ark.
Farm business analysis and historical study in Curry and Roosevelt Counties with some enterprise cost studies in butterfat production.	(P)	N. Mex.
A study of the costs of operation in the college creamery, producing milk, cream, ice cream, and butter.		Conn. Storrs.
Cost of pasteurization.		Iowa.
Cost of producing hogs.		S.C.
Cost of producing pork.		Ill.

RURAL ECONOMICS--Cost of Production and Accounting. (Cont.)

The influence of different systems of management upon the cost of producing pork.	Mo.
Comparing feed costs of growing spring and fall pigs in Delaware.	Del.
Cost of raising pigs to weaning time.--To determine the cost of producing pigs to weaning age, or eight weeks.	N.C.
Cost of fitting show barrows.	Oreg.
Cost of production of pullets.	Mont.
The cost of putting pullets into laying	N.C.
To compute the cost of raising a pullet from hatching to maturity (laying age).	Pa.
Cost of hatching and rearing broilers.	Mich.
A comparison of the cost of production of single-comb White Leghorns and Barred Plymouth Rocks. (West Central-Substation, Morris)	Minn.
Cost of production.--To ascertain the cost of production of market eggs and poultry.	N.Dak.

Economics of Production.

An economic study of corn production and utilization.	Mont.
An economic study of flax production.	Mont.
An economic study of one or more potato farms in the Hastings ( Florida)area.	(P) Fla.
A field study of tobacco production in Massachusetts.	Mass.
Survey of tobacco farms in the Connecticut Valley.	(P) Conn.Storrs
The economic conditions affecting the Connecticut Valley tobacco industry.	(P) Conn.Storrs.
Field study to determine the present status of the Massachusetts orchard industry.	(P) Mass.



RURAL ECONOMICS--Economics of Production. (Cont.)

- Economic studies into the cost of producing almonds in California. (P) Calif.
- Economic study of the apple industry. N.J.
- Economic study of the apple industry in Oxford County and vicinity for 1925 to 1929. (P) Me.
- The economic factors underlying the supply and market distribution of New England apples. (P) Mass.
- Economics of the apple industry in the Cumberland Valley region. (P) Pa.
- Economic factors underlying the supply and distribution of apples in Rhode Island. (P) R.I.
- Economic study of the peach industry. N.J.
- Survey of the peach industry. (P) Ark.
- Economics of strawberry production. (P) Oreg.
- Economics of cattle production under Nevada range and ranch conditions. (P) Nev.
- Study of the factors affecting the economics of range cattle production in New Mexico. (P) N.Mex.
- Study of costs and methods of range livestock production and ranch organization in the Edwards Plateau area of Texas. Tex.
- A study of the range livestock industry in the northern Great Plains area. (P) Wyo.
- Economic survey of the range livestock industry in Arizona. (P) Ariz.
- A study of the economics of beef cattle farming in Virginia, including the economics of feeding and management in relation to the quality and palatability of the beef produced. (P) Va.
- A study of the changes that have taken place in the production of beef cattle in Idaho and the reasons for these changes. (P) Idaho.
- A study of the changes that have taken place in dairying in Idaho and the reasons for these changes. (P) Idaho.

RURAL ECONOMICS--Economics of Production. (Cont.)

- A study of dairy farms and factors affecting economy in dairy production in the dairying regions of Virginia. (P) Va.
- Special milk production surveys. Md.
- A study of the changes that have taken place in the production of sheep and wool in Idaho and the reasons for these changes. (P) Idaho
- Survey of Maryland sheep industry and a correlation of the factors which determine the successful raising of sheep. (P) Md.
- A study of the range sheep industry in Wyoming. (P) Wyo.
- Study in the economy of producing feeder hogs. (Coastal Plains Substation) Miss.
- Economic study of the poultry industry. N.J.
- Economics of the canning industry in Maryland. (P) Md.
- An economic and special study of 500 farms and farm homes in representative areas of Arkansas. Ark.
- An economic study of irrigated farming in selected areas of southern Idaho. (P) Idaho.
- Investigation of economic and farming conditions in irrigated districts. (P) Calif.
- Agricultural survey of some 500 farms in the general farming region of Northwest Florida. (P) Fla.

Farm Labor.

- Distribution of farm labor. Mo.
- Utilization of labor on the farm. Mo.
- Study of labor income of West Virginia farms. (P) W.Va.
- Labor income study of 180 farms about the town of Newfane, Niagara County, for the year. N.Y. Cornell.
- Study of farm labor in Wisconsin. Wis.

RURAL ECONOMICS--Farm Organization and Management.

Farm organization studies.	Mont.
Farm organization. Records on about 500 farms.	Oreg.
Farm organization and farm costs.	Nebr.
Farm organization and management studies.	Iowa.
Farm management studies.	(P) La.
Farm management survey.	Mo.
Special farm management studies.	(P) S.C.
Miscellaneous farm management observations.	Mont.
Miscellaneous farm management work.	N.Dak.
A study of farm organization and management through cost account.	(P) Ky.
Farm management survey. The effect of diversity of business on labor income.	Nebr.
General plans of farm organization and operation in different sections of the State.	Mo.
Farm organization and management studies.--To study the organization, production, and operation of a large number of farms located in a contiguous area.	Ill.
A study of farm organization in the Jackson purchase area of western Kentucky.	(P) Ky.
Investigation of farm organization and labor efficiency on Massachusetts farms.	Mass.
A study of the organization of farms in the Red River Valley.	(P) Minn.
Farm organization studies in the Gallatin Valley.	Mont.
Farm organization studies on the plains area of northern Montana.	Mont.
A study of the range livestock industry in the Northern Great Plains Area.	(P) N.Dak.



RURAL ECONOMICS--Farm Organization and Management. (Cont.)

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| A study of farm organization in the black earth area of North Dakota.  | (P) | N.Dak.       |
| An economic study of farming in the hill regions of Chenango and Chataqua Counties from the standpoint of future land utilization.                 |     | N.Y.Cornell. |
| Study of farm organization and management in Cleveland County (Piedmont Region), North Carolina.   | (P) | N.C.         |
| Study of farm organization and management in Craven County (Tidewater Region), North Carolina.   | (P) | N.C.         |
| A survey of 159 farms in southwestern North Dakota.  |     | N.Dak.       |
| A study of farm organization in the South Dakota wheat belt, of which Brown County is typical.   | (P) | S.Dak.       |
| A study of farm organization and mangement in East Central South Dakota of which Kingsbury County is typical.                                      | (P) | S.Dak.       |
| Ranch organization in Great Plains area.   | (P) | S.Dak.       |
| A study of farm organization, methods, and practices, and cost of production of farm products in a typical blackland cotton-farming area of Texas. | (P) | Tex.         |
| A test of grain v. livestock farming.  |     | Ohio.        |
| Crop rotations and comparison of livestock and grain systems of farming.   |     | S.Dak.       |
| A study of methods of farm organization and practices on livestock farms.  |     | Minn.        |
| A continuous farm management study of cotton farms in Anderson County, South Carolina.   | (P) | S.C.         |
| Farm management.--To place the (unused portion) of the farm in condition to produce crops for feed or sale. (Caldwell Sub-station)                 |     | Idaho.       |
| Study of successful farms.   | (P) | Ill.         |
| Studies of successful farms.   |     | Mont.        |

RURAL ECONOMICS--Farm Organization and Management. (Cont.)

Farm financial record study. (P) Ill.

Detailed farm accounting investigations. A study of the organization and operation of farms, with the view of finding ways and means of securing greater economy in the production of farm products. Ill.

Farm business analysis and historical study in Curry and Roosevelt Counties with some enterprise cost studies in butterfat production. (P) N.Mex.

Farm business analysis and settlers' progress study in selected areas in Texas. Tex.

Farm financial study.--To study profitable practices and systems of farming, the effect of practices based on experimental data, and farm income under different types of farming. Ill.

A farm business survey of South Mississippi. (P) Miss.

Detailed farm records and accounts in Rockwell and Collins Counties, Texas. Tex.

An agricultural economic survey of a typical black land cotton farming area. Tex.

Factors affecting organization and operation of Kansas farms. Statistical route studies. (P) Kans.

Factors affecting returns from various types of farms and farm practices in the Bitter Root Valley. (P) Mont.

Study of the competitive status of Massachusetts farm enterprises. (P) Mass.

Land utilization and farm development studies. (P) Nev.

Type of farming studies. Iowa.

Trends in the type of farming areas as indicated by farm management and organization studies. (P) N.J.

Trend of agriculture in North Dakota by counties and types of farming. (P) N.Dak.

RURAL ECONOMICS--Farm Organization and Management. (Cont.)

- A study of the physical organization of farms. Minn.
- Applied farm organization. Plans prepared and installed for forty farms. Oreg.
- Farm management and farm organization in the operation of farms where peaches are grown as the outstanding enterprise in the farm business. (P) Colo.
- The effect of farming practices on returns on sugar beet farms. (P) Mont.
- A study of range organization, methods, and practices and costs of range livestock production in the Edwards Plateau region of Texas. (P) Tex.
- Dairy farm management.--(a) To encourage the introduction of dairying as a type of farming for this area of the State, (b) to determine the crops to be grown for a dairy herd, (c) to determine the proper number of animals to be maintained on a 60-acre unit of land and their management. Idaho.
- An economic study of the organization of 550 dairy farms in New York. N.Y. Cornell.
- Detailed farm accounting investigations on dairy farms. Ill.
- An economic study of dairy farming in Montana. Mont.
- Factors influencing labor income on poultry farms in New York State. N.Y. Cornell
- Operation of the Van Meter farm. Ky.
- Operation (in part) of University farm. Vt.
- Study of corporation farming. N.J.
- Planning the Iowa farmstead. The arrangement of the buildings for economy of space and convenience, the grouping of certain buildings because of their common or similar use, and the arrangement of trees, shrubs, vines, and flowers to afford comfort and attractiveness to the farm home. Iowa.



RURAL ECONOMICS --Farmers' Cooperative Organizations.

- Cooperative organizations in New York State. N.Y. Cornell.
- Agricultural cooperation in Michigan. (P) Mich.
- The farmers' cooperative movement in Minnesota. Minn.
- The organization of the Farmers' Supply Service. Minn.
- Investigation of cooperative marketing and purchasing in  
Kentucky. (P) Ky.
- A study of membership problems of cooperative marketing associa-  
tions. (P) Ky.
- The organization and management of cooperative warehouses in  
West Virginia. (P) W. Va.
- Development of legal phases, structure, and merchandizing  
functions of the cooperative warehouse. (P) W. Va.
- Farmers' grain elevator investigations. (P) Ill.
- Problems of elevator management, financing, and organization. (P) S. Dak.
- Farmers' grain elevator investigations.--Extent and trend of  
cooperative activity, practices followed in handling grain  
locally, variations in unit cost, significance of local  
sales, and the value of various methods of organizing and  
operating. Ill.
- Organization and business practices of farmers' elevators in  
North Dakota. (P) N. Dak.
- The elements of strength and weakness with the individual  
membership in the functioning of typical centralized co-  
operative marketing associations in Oklahoma. (P) Okla.
- Investigation into the attitude of farmers to the marketing  
contract of the cooperative cotton and tobacco growers'  
association in South Carolina. (P) S.C.
- A problem of the Minnesota Cooperative Creamery Association. (P) Minn.

RURAL ECONOMICS--Land Settlement.

Methods employed by private agencies in land settlement. Minn.

Financing the settler ~~through~~ the early stages of settlement. Wis.

Land Tenure.

Farm tenure. N.Y. Cornell.

Farm tenure.--To determine costs, investments, labor income, social phases, etc. Nebr.

Investigations of agricultural land tenure and transfer. Ill.

Farm tenancy. Iowa.

A study of farm tenancy in Indiana. Ind.

Land tenure in Missouri. Mo.

Tenancy and ownership. Okla.

A study of farm tenancy in Pennsylvania and of forms of leases and contracts. (P) Pa.

Land problems: A study of the physical and productive organization of tenant-operated and owner-operated farms. Ill.

A study of the distribution of land ownership and the causes and significance of tenancy in the Blue Grass region of Kentucky. Ky.

Leasing methods and financial returns on rented dairy farms in New York. N.Y. Cornell.

A study of the practices pertaining to the renting of farm land in Virginia. (P) Va.

Study of farm leases in Wisconsin. Wis.

RURAL ECONOMICS--Land Values.

- The farm land problem. Land prices, farm mortgages, and taxation. Nebr.
- Nebraska farm land prices.--Trends and factors affecting them. (P) Nebr.
- Land prices and cycles. (P) S.C.
- A study of the relation of land values to crop prices, tenancy, and rate of taxation. N.C.
- The agricultural and market value of Missouri farm lands. Mo.
- Market value of Michigan farms as indicated by sales. (P) Mich.
- Methods of land valuation with special reference to Minnesota. Minn.
- Land utilization. N.Y. Cornell.

Marketing.

- Marketing organization investigations. Minn.
- Cooperative marketing investigations. Okla.
- A study of cooperative marketing in California. (P) Calif.
- A study of the membership problems of cooperative marketing associations. (P) N.C.
- The status and influence of marketing associations in New Mexico. (P) N.Mex.
- Organization and management of marketing agencies. (P) Mo.
- Production, supply, and demand study. (P) S.C.
- Market business practice. Minn.
- Cheshire County survey.--A study of the balance between farm production and market demands. N.H.
- Marketing survey of food products in various counties of Pennsylvania. Pa.



RURAL ECONOMICS--Marketing. (Cont.)

- Supply methods of marketing and consumption of food in West Virginia cities and agricultural production in nearby territory. (P) W. Va.
- Boston food supply study. Mass.
- And economic survey of the production, consumption, and marketing of farm products in the trade area of Billings, Mont. (P) Mont.
- Study of local market conditions and requirements in an attempt to more nearly adjust agricultural production to meet these conditions and requirements. (P) Me.
- A study of the economic balance in New Hampshire between production and consumption of certain farm products. (P) N. H.
- Supply, methods of marketing, and consumption of food in West Virginia cities, and agricultural production in nearby territory. (P) W. Va.
- An analysis of the Columbia trade area, showing the influence of various economic factors on the shape and size of this trade area. Mo.
- Requirements of consumers' areas, especially Laramie and Casper. (P) Wyo.
- Agricultural production and marketing in Atlantic County. N. J.
- A study of the marketing of Delaware farm products. (P) Del.
- Cotton marketing investigations. S. C.
- Cotton handling and marketing. Tex.
- Hay marketing. N. Y. Cornell.
- Marketing New York State hay in terminal and country markets. (P) N. Y. Cornell.
- An economic study of the costs and methods of marketing hay at country shipping points. N. Y. Cornell.
- Hay standardization. Tex.
- Red top marketing investigations.--To determine methods followed in disposing of the Illinois crop, influence of various factors on the cost of marketing and prices paid, and the marketing characteristics of the crop. (P) Ill.

RURAL ECONOMICS--Marketing. (Cont.)

- Seed marketing investigations, including volume and variety problems, stock and storage problems, and the origin, market movements, prices and handling margins and destinations. (P) Ill.
- A study of the factors involved in marketing the soy bean crop of North Carolina. (P) N.C.
- Soy bean marketing investigations.--To determine (a) the methods followed in disposing of the soy bean crop, (b) the influence of various factors upon its cost of marketing, (c) the influence of various factors on the prices paid for soy beans and soy bean products, and (d) the marketing characteristics of the crop in relation to the capacity of producers and consumers to deal in it cooperatively. Ill.
- Investigations of the marketing of tobacco. (P) Ky.
- Economic investigations of the grain trade of Iowa. Iowa.
- Investigation of terminal grain markets with special reference to the extent storage capacity has been utilized. (P) Ill.
- Marketing farm products.--The federation of local grain elevators. (P) Minn.
- Economic investigation of the corn trade of Iowa with special reference to corn surpluses. (P) Iowa.
- The rye marketing system of central Jersey. N.J.
- An economic study of the costs and methods of marketing beans and wheat at country shipping points. N.Y. Cornell.
- Cost of marketing corn and wheat in Nebraska by different marketing methods. (P) Nebr.
- Wheat marketing investigations.--To determine the geographic origin of various classes and grades, extent and causes of market depreciation of wheat, and basis of improving the market condition. (P) Ill.
- Marketing of Kansas wheat. Studies of farm storage, credit, and quality factors. (P) Kans.

RURAL ECONOMICS--Marketing. (Cont.)

- A study of Montana methods of marketing wheat. (P) Mont.
- Primary markets for Idaho potatoes, cheese, eggs, beef, and mutton, and the extent of competition in these markets represented by the products of other States 1914-1924. (P) Idaho.
- An economic study of the marketing of citrus fruits in Florida. (P) Fla.
- Marketing Indiana fruits and vegetables--grades and standards. (P) Ind.
- The supply and marketing of vegetables and fruits. (P) R.I.
- Marketing farm products.--Margins on locally-grown fruits and vegetables in the St. Paul market. (P) Minn.
- Losses due to spoilage of fruits and vegetables during the marketing process. (P) Ill.
- An economic study of costs and methods of marketing fruit in New York State. N.Y. Cornell.
- Marketing Calhoun County apples. (P) Ill.
- Study of the market outlets for Massachusetts (and New England) apples.--Demand and competition (a) on the domestic market, and (b) on foreign markets. (P) Mass.
- A study of the organization and operation of apple marketing agencies in the State of Washington. (P) Wash.
- Economic factors underlying the supply and distribution of apples in Rhode Island. (P) R.I.
- The economic factors underlying the supply and market distribution of New England apples. (P) Mass.
- A study of costs and methods in marketing canteloupes in the San Luis Valley. Colo.
- Factors influencing the marketing of winter vegetables in the Lower Rio Grande Valley of Texas. (P) Tex.
- An economic study of costs and methods of marketing potatoes and cabbage in New York State. N.Y. Cornell.



RURAL ECONOMICS--Marketing. (Cont.)

The marketing of potatoes and other New York State produce in New York City, Philadelphia, Pittsburgh, and Cleveland. (P) N.Y. Cornell.

The marketing of California sweet potatoes, Irish potatoes, cantaloupes, and watermelons. The methods now used and the functions performed by each of the agencies taking part in the movement; also, the proportion of the consumer's dollar taken by each agency, methods of price determination, and present and possible markets for the products. Calif.

Investigation of livestock marketing. (P) Ky.

Cost, methods, and practices of marketing livestock. (P) W.Va.

Marketing farm products.--Organization for selling livestock in the Central Livestock Market. (P) Minn.

Marketing Kansas livestock and livestock products. A study of cooperative livestock shipping organizations in Kansas. (P) Kans.

Economic investigation of marketing of Iowa livestock. Iowa.

Marketing farm products.--Local concentration of livestock in Minnesota. (P) Minn.

Cooperative agricultural organizations. Cooperative marketing of livestock in Nebraska. Nebr.

Marketing Ohio livestock. (P) Ohio.

Investigation of livestock marketing in Wisconsin. (P) Wis.

Beef market requirements in relation to cost of production. (P) Oreg.

Livestock marketing.--seasonal movements of beef cattle. (P) Mo.

Marketing farm products. Seasonal movements of cattle to market. (P) N.Dak.

Hog marketing investigations. (P) Ind.

Marketing Wisconsin farm products. Marketing dairy products and livestock. Wis.

Dairy marketing research in Texas. Tex.

Costs of dairy production and processing and marketing procedures. (P) Vt.

RURAL ECONOMICS--Marketing. (Cont.)

Economic investigation of the manufacturing and marketing of Iowa dairy products.		Iowa.
Marketing Michigan dairy products.	(P)	Mich.
Milk marketing.		N.Y.Cornell.
The marketing of milk.	(P)	Pa.
Detroit milk market.	(P)	Mich.
Economic study of milk marketing in Binghamton, New York.	(P)	N.Y.Cornell
Economic study of milk marketing in New York.		N.Y. Cornell.
Milk marketing investigations for New York City.		N.Y.Cornell.
Factors affecting milk demand in New York City.	(P)	N.Y.Cornell.
Economic effects of western cream on New York City milk market.	(P)	N.Y.Cornell
Production and marketing of special grade high quality milk under Vermont farm conditions.	(P)	Vt.
A study of the producers' methods of disposing of milk and dairy products and the return secured.	(P)	Ind.
Study of methods and costs of assembling milk at country plants.		N.Y.Cornell.
Methods and costs of hauling milk from farms to milk plants.	(P)	N.Y.Cornell.
An economic study of cream marketing.	(P)	Ill.
A study of the methods followed by Oregon creameries in marketing butters.	(P)	Oreg.
A study of the production and marketing of butter in Missouri.	(P)	Mo.
The marketing of poultry products.	(P)	Pa.
Direct marketing of poultry products.		S.Dak.
Investigation of the marketing of poultry and eggs.	(P)	Ky.
Poultry and egg marketing.		N.Dak.
The marketing of Delaware eggs.	(P)	Del.
Retail distribution of feeds in New York.		N.Y.Cornell.

RURAL ECONOMICS--Marketing. (Cont.)

Merchandizing practices, costs, and factors affecting costs  
of operating retail feed stores. (P) N.Y. Cornell.

Feeding stuffs--Distribution costs in Vermont. (P) Vt.

Survey of roadside markets for farm products. Md.

The farmers' marketing attitudes. Minn.

Prices.

Market price quotations. Minn.

Market price investigations. Minn.

Economic studies in price, volume of production, and purchasing  
power of farm products. Nebr.

Investigations of prices of Illinois farm products.--To determine  
long and short time trends in prices and factors influencing  
trends and spreads. Ill.

Prices of farm products. (P) Minn.

Prices of farm products. (P) N.Y. Cornell.

Prices of agricultural products and other commodities. N.Y. Cornell.

The relation of changes in the general price level to prices  
of farm products. Minn.

Investigations of the forces determining the prices of farm  
products. The price of potatoes in St. Paul and Minneapolis. Minn.

The correlation between South Dakota farm prices and production.  
(P) S. Dak.

Wheat prices. N.Y. Cornell.

Production and prices of apples, hay, potatoes, and  
cabbage. N.Y. Cornell.



RURAL ECONOMICS--Rural Credit.

Farm credit.	(P)	Ark.
Farm credit.		N.Y. Cornell.
Farm credit survey.		N. Dak.
Investigation of agricultural credit in Iowa.		Iowa.
An economic study of the agricultural credit situation in New Jersey.		N. J.
Agricultural credit.--The present agricultural credit situation in Minnesota.	(P)	Minn.
A study of the credit needs of South Dakota agriculture and of the credit agencies serving it.	(P)	S. Dak.
The comparative advantages of forms of intermediate and long-time credit.	(P)	S. C.
Study of farm mortgage financing in Texas.		Tex.
Investigations into foreclosures of farms since 1919.	(P)	S. C.

Taxation.

Farm taxation.	(P)	Ark.
Problems in taxation.	(P)	S. C.
Taxation problems of agriculture.		Mo.
Taxation problems of agriculture.	(P)	S. Dak.
Taxation problems in agriculture.		Tex.
A study of agricultural taxation.		Wis.
Income taxation, utilization, acquisition, and classification of land, and other land problems.	(P)	Kans.
Study of the taxation of farm property.	(P)	Mass.
Taxation in its relation to agriculture.--The present agricultural taxation situation in Minnesota.	(P)	Minn.
Taxation as it affects agriculture.	(P)	Okla.
Taxation of farm property		N.Y. Cornell
A study of taxation in Pennsylvania,	(P)	Pa.
Taxation on forest and cut-over lands in northern Wisconsin.	(P)	Wis.

RURAL ECONOMICS--Miscellaneous.

- Agricultural atlas for Arkansas. Ark.
- A study of the agricultural statistics of California. (P) Calif.
- A study of the agriculture of the Hartford District. Conn. Storrs.
- Agricultural adjustments in northern Indiana. (P) Ind.
- A study to determine the competitive status of the more important agricultural enterprises in Massachusetts. Mass.
- History of agriculture in New Jersey--economic influences and developments. N.J.
- History of agriculture in New Jersey. Educational and social development prior to 1880. N.J.
- Study of Monmouth and Sussex County agriculture. N.J.
- Economic analysis of Tennessee conditions. Tenn.
- Delineation of agricultural areas. N. Dak.
- Reconnaissance of the economic conditions of five representative agricultural countries. (Berkeley Substation) Calif.
- A comparative study of the agriculture of certain countries of the Caribbean. (Berkeley Substation) Calif.
- Land classification. Minn.
- What soil type characteristics are factors in determining land utilization. Conn. State.
- Relation of industrial conditions to agricultural conditions. N.Y. Cornell.
- Elasticity of supply of farm products. Minn.
- The transportation of Iowa agricultural products. Iowa.
- Farmers' incomes in Minnesota. Minn.
- Measuring purchasing power of farmers. (P) S.C.
- Fire insurance. N.Y. Cornell.
- Study of freight rates. N.Y. Cornell.
- Cost and standards of living on Nebraska farms. (P) Nebr.

HOME ECONOMICS

Clothing and Textiles.

Protective value of certain clothing fabrics. Protective coefficient of cloth fabrics as affected by weave, textile fabric, and finish. (P) Kans.

Kind and quality of materials in women's coats from typical retail stores of the State. (P.) S. Dak.

Color knowledge essential to costume and its practical application. Mo.

Factors affecting penetration of ultra violet rays of the sun through animal and vegetable fiber. (P) Utah.

The wear of hosiery. Mo.

Food Preservation. (See also Storage Studies).

The function of sulphur dioxide in the drying offruits. (Berkeley Substation) Calif.

A study of methods designed to prevent darkening of fruit during the process of drying without the use of sulphurous acid. (Berkeley Substation.) Calif.

Moisture loss in dried fruits and maximum water content. (Berkeley Substation.) Calif.

A survey of the deciduous fruit drying industry of the State. An inquiry into the best localities, varieties, yields, methods, equipment, and costs of producing dried fruit in California both by sun drying and by artificial evaporation. (Berkeley Substation) Calif.

An experimental study of equipment for drying and curing of deciduous fruits on a commercial scale. (Berkeley Substation) Calif.

Methods of preparing various fruit juices, including the development of methods of preparing carbonated beverages from fruits and their application to commercial production. Calif.

Methods of making glace fruits, with a study of the use of fruit in confections. (Berkely Substation) Calif.

The preservation of grapes by chemical preservatives. (Davis Substation) Calif.

Dehydration of fruits and vegetables. Oreg.

Deyydration of walnuts and walnut dryers. Oreg.



HOME ECONOMICS--Food Preservation. (Cont.)

The canning industry of Maryland.		Md.
Canning of Oregon grown apples.		Oreg.
Effect of sulphur sprays on canned gooseberries.		Oreg.
Canning oranges and mangoes.--To preserve perishable tropical fruits to the end that they may be profitably marketed.		Porto Rico.
Determination and identification of the organisms which cause spoilage of canned vegetables in the South.	(P)	Fla.
Microorganisms in the canning industry.		Iowa.
Food preservation--Vegetables.	(P)	Mont.
Heat resisting bacteria of fresh and canned vegetables and their relation to spoilage.	(A)	Colo.
A study of the thermal death point of <u>Bacillus botulinus</u> , especially in relation to the sterilization of canned vegetables. (Berkeley Substation)		Calif.
The effect of blanching in the canning of some typical crops of vegetables.		Mo.
Olive pickling. (Berkeley Substation)		Calif.
Corn black investigations.--To determine the cause of iron sulphide black in canned sweet corn, and its elimination or control.		Ill.
The use of preservatives in sweet cider.--To learn the effect of various preservatives on the keeping and tasting qualities of sweet cider.		Ill.
Investigation of some of the conditions affecting the keeping quality of certain foods.		Ind.
Studies in the keeping qualities of certain foods in household refrigerators.		N.Y. Cornell.

HOME ECONOMICS--Foods and Nutrition.

- Human food--its composition, properties, utilization, and preservation. Tex.
- The relation of diet to bodily activity and to capacity to withstand unfavorable circumstances. (P) Mo.
- Food consumption by farm and village families. A study in consumers' demand. (P) N.Y.Cornell
- A study of the food habits of certain groups of people and the influence of these habits on physical condition and on the composition of the blood. (P) S.C.
- Food habits of Georgia rural people. (P) Ga.
- A study of the food habits in Mississippi for nutritive status of people. (P) Miss.
- Kind and source of food consumed by North Carolina farm families. (P) N.C.
- Food habits of Utah families (P) Utah
- Study of consumption habits of Iowa farm families. (P) Iowa.
- Index numbers of money cost of living in small towns and on farms in New York State. (P) N.Y.Cornell.
- A study of food expenditures and consumption of farm families.-- To obtain information pertaining to the food consumption habits of the nation, etc. (P) Wyo.
- An investigation of food expenditures and dietary standards of rural families in Virginia. (P) Va.
- Studies of food expenditures of farm families in Wisconsin. (P) Wis.
- Food consumption of school children in relation to health. (P) Mass.
- Phosphorus intake of the pre-school child as shown by a dietary study made by the individual method. Ohio.
- A study to determine the apparent prevalence of nutritional diseases in rural school children between the ages of six and twelve years in five representative counties in Florida. (P) Fla.
- Influence of soil composition and treatment on the ash content of food plants. (P) N.J.

HOME ECONOMICS--Foods and Nutrition. (Cont.)

- The nature, origin, and function of "bios." (P) Tenn.
- To carry on investigation for developing methods looking toward the economic utilization of surplus food products, with special reference to the problems of the home. W.Va.
- An investigation for developing methods looking toward the economic utilization of surplus food products with special reference to the problems of the home. Subproj.--Standardization of cherry preserves. (P) W.Va.
- Utilization of surplus fruits and vegetables and their by-products. (P) Ga.
- Extraction of fruit juices in manufacture of fruit jellies. (P) Mass.
- Principles of jelly making. Colo.
- Study of the factors that induce jellying of fruits. (A) Del.
- Study of the factors affecting the jellying of kumquats, loquats, roselle, and guava. (P) Fla.
- An investigation of the principles of jelly making as applied to tropical fruits. Hawaii.
- The use of fruits in ice cream. (Berkeley and Davis Substations) Calif.
- The utilization of raisins. (Berkeley Substation) Calif.
- Sauerkraut investigations. N.Y. State.
- Improving the quality of sauerkraut. (P) Wis.
- Investigations of sauerkraut production. Wis.
- Dill pickle investigations. N.Y. State.
- Tomato products. N.Y. State.
- Use of various forms of yeast and various processes in making bread from Missouri soft wheat flour. (P) Mo.
- The nutritive value of wheat and wheat products. (A) Wash.
- A study of the factors affecting the texture of cake. Mo.
- The nutritive value of breakfast foods. Mo.



HOME ECONOMICS--Foods and Nutrition. (Cont.)

- Studies in human nutrition--caloric values of foods. (P) N.H.
- Nutritive value of natural foods and changes taking place in process of preparation. (P) N.Y. Cornell
- The mineral content of vegetables as affected by the method of cooking. (P) Iowa.
- The effect of the use of salt in cooking vegetables. (P) Ohio.
- The effect of salt upon the loss of iron in cooking vegetables. Mo.
- A study of the causes for variation in cooking qualities of white potatoes. (P) Ky.
- Potato investigations. Potato cooking trial. Oreg.
- The cooking quality of Colorado potatoes. Colo.
- Nutrition studies with meats. (P) Iowa.
- A study of methods of preparing pork products. (P) Minn.
- A study of the energy value of milk. Ill.
- Comparison of food values in milk of different grades. Va.
- Studies regarding the nutritive value of milk, its suitability for food for children and animals, conditions which affect its nutritive value, tolerance, and related questions. (A) Vt.
- Utilization of calcium and phosphorus from fresh, dried, and evaporated milk... (P) Kans.
- The determination of amount of food products received in the New England consuming area. (P) Mass.
- Influence of diet on urinary organic acid output. (P) Ky.
- The relation of diet to blood formation and regeneration. (P) Minn.
- An investigation of the metabolism of obesity. (P) Ky.
- Nutrition of infants. Utah.

HOME ECONOMICS--Household Management.

Present use of time by homemakers.	(P)	Idaho.
Present use of time by farm homemakers.	(P)	Oreg.
Study of present use of time by farm homemakers in the State of Washington.	(P)	Wash.
Use of time by rural homemakers as influenced by the various conditions.	(P)	R.I.
Routine and seasonal work of the housekeeper.	(P)	Nebr.
A reasonable length of working day for household done under various conditions of living.		Mo.
Time study of infant care. A study of the time spent by the mother and other persons in caring for children under one year of age and in good physical condition.	(P)	Kans.
Water carried for household purposes.	(P)	Nebr.
Lighting with portable lamps.	(P)	Nebr.
Kerosene cooking stoves.	(P)	Nebr.
The Nebraska rural kitchen.	(P)	Nebr.
Farm cost of living.		Iowa.
Cost of family living on the farm.		Mo.
Cost and standards of living on Nebraska farms.	(P)	Nebr.
The needs of farm homes.	(P)	Mich.
Basic factors in farm home planning.	(P)	Ark.
A study of methods of household budgeting and accounting.	(P)	Vt.
A quantitative and qualitative study of farm homes in Minnesota with special emphasis on the influence of the farm upon the management of the home and the life of the family.	(P)	Minn.
The farm woman's part in establishing the economic status of the family by her standard of management with special reference to clothing.	(P)	Okla.
The relationship of housing to the health of the family in rural homes.	(P)	Va.

HOME ECONOMICS--Milling and Baking. (See also WHEAT p. 164)

Storage Studies.

Fruit storage. Wash.

Physiological aspects of fruit storage. (A) Md.

Factors involved in the cold storage of fruits. N.Y.Cornell.

Fundamental studies of metabolic activities of fruits with special reference to their ripening and keeping in cold storage. (Berkeley Substation) Calif.

A study of the effect of degree of stage of ripeness of fruit at picking upon its behavior in cold storage. Effect of maturity and region wherein grown upon the keeping quality of plums at different temperatures. (Berkeley and Davis Substations) Calif.

Storage of fruits at low temperatures for preserving, canning, and soda fountain use. A study of the preservation of different fruits in the fresh condition by means of freezing temperatures; also, the effect of freezing in sugar solution upon changes in chemical composition and quality. (Berkeley Substation) Calif.

The cold storage of certain semi-tropical fruits. The behavior of certain varieties of persimmons and jujubes at 32 degrees F., and the effect of  $\text{CO}_2$  fumes upon the astringency of the Goshō Japanese persimmon. (Berkeley Substation) Calif.

The influence of humidity on respiration and respiratory changes in fruit during storage at low temperatures. N.Y.Cornell.

Storage of fruits at low temperatures for preserving, canning, and fountain use. (Berkeley Substation) Calif.

Fruit precooling. Mich.

Cold storage for Iowa apples. Iowa.

Management of a cool apple storage cellar.--To study the various factors influencing successful cool storage of fruit, the influence of various types of wrappers and containers upon the keeping qualities of the fruit, and the physiological changes in fruit associated with changes in temperature and humidity, and the influence of maturity, quality, and size of fruit on the rate of these changes. Ind.



HOME ECONOMICS--Storage Studies. (Cont.)

- The keeping qualities of apples in cold storage as affected by the health and vigor of the trees. A study of the conditions which favor and oppose the internal browning of the Yellow Newtown when grown under Pajaro Valley conditions. (Berkeley Substation) Calif.
- Apple storage.--Construction of a storage house and its adaptability. N.C.
- Keeping quality of apples as related to acidity changes and temperature control during cold storage. Iowa.
- Respiration of apples in relation to their keeping quality. A study of the respiring quotient of apples at common-storage and cold-storage temperatures. N.Y.Cornell.
- Chemical changes in the ripening and storage of the apple. Iowa.
- An experimental study of the storage period of selected lot of table grapes. (Berkeley Substation) Calif.
- Storage tests with vegetables.--To determine best storage varieties and proper conditions of storage for various crops. N.Dak.
- Irish potato storage.--To collect notes and information on Irish potato storage and the operation of a storage house. N.C.
- Changes in flour during storage. Utah.

Vitamin Studies as Related to Human Nutrition. (See also FEEDING STUFFS AND ANIMAL NUTRITION--Vitamin Studies as Related to Animal Nutrition, p.308.)

- Relation of wave length to synthesis of plant vitamins and comparison of rate of vitamin synthesis and rate of photosynthesis and of vitamin content and chlorophyll content. (P) Okla.
- Studies on the existence of a fertility vitamin necessary for normal reproduction of rats. Minn.
- The interrelation of carriers of vitamins A and B as affecting growth and tissue change of young animals. Minn.
- Experiments in feeding rats, using potatoes as the basis of the diet. N.Y.Cornell.

HOME ECONOMICS--Vitamin Studies as Related to Human Nutrition. (Cont.)

- Influence of soil composition and treatment on vitamin content of food plants. (P) N.J.
- Vitamin content of foods relating to human nutrition. Factors affecting seasonal variation in growth curve of children. (P) Kans.
- Differences in the vitamin A content of yellow and green beans. N.Y.Cornell.
- Factors affecting vitamin B content of plant products. (P) Ala.
- The influence of soil fertility upon the vitamin B content of the wheat kernel.. Ohio.
- The influence of fertilizers upon the nutritive value of crops. The vitamin B content of the wheat kernel. (A) Ohio.
- An experimental study of the effect of various methods of canning carrots on their antiscorbutic properties. N.Y.Cornell.
- Differences in the antiscorbutic properties of yellow and red tomatoes. N.Y.Cornell
- The antiscorbutic content of tomatoes from different sources and produced under different conditions. (P) Wis.
- An investigation of the antiscorbutic value of certain California fruits and fruit juices. (Berkeley Substation) Calif.
- The antirachitic value of mothers' milk. Minn.
- Nature of the antirachitic vitamin; antirachitic activation of foods with ultraviolet light. (A) Wis.
- The influence of commercial condensing processes upon the vitamin content of cows' milk. (A) Pa.
- Variations in vitamin content of Texas foods. (P) Tex.
- The effect of milling processes on the vitamin B content of cereal products used for human food. (P) Ill.
- The distribution of vitamin B in the kernels of unmilled cereal grains. (P) Ill.



HOME ECONOMICS--Vitamin Studies as Related to Human Nutrition. (Cont.)

- Study of the vitamin C content of vegetables canned in the pressure cooker. (P) S. Dak.
- Vitamin content of some commercially canned vegetables. (P) Mich.
- To find the causes of vitamin destruction in cooked and canned foods.--To test the theory of oxidation as cause of vitamin C destruction. Mo.
- Determination of relative vitamin content of certain foods and the changes which take place in the process of preparation. (P) N. Y. Cornell.
- A quantitative determination of the vitamin content of collards and of turnip tops and the destruction of the vitamin by heat and oxidation. (P) Ala.
- A study of the vitamin B content of mustard, turnip greens, collards and lettuce by the rat-growth method. (P) La.
- Vitamin content of turnip greens, collards, peaches, and canteloupes. (P) Ga.
- Vitamin content of foods relating to human nutrition.  
Vitamin content of cabbage, sauerkraut, relishes, celery, cherries, peaches, rhubarb, and string beans. (P) Kans.
- The vitamin content of vegetables as affected by storage--squash and carrots. (P) Iowa.
- The vitamin content of vegetables as affected by cultural methods and degree of maturity - tomatoes (P) Iowa.
- An investigation of the vitamins of kale. (P) Ky.
- The vitamin content of honeys as affected by their preparation for market. (P) Iowa.
- The antirachitic value of egg yolk and the effect of the food of the hen and other conditions on this factor in the yolk. (P) N. Y. Cornell.
- The relation of vitamins to disease resistance. Iowa.

Miscellaneous.

- Floor coverings.--A study of the durability of and best methods for caring for certain types of floors. Ind.



RURAL SOCIOLOGY:

Education.

- Organization and administration of public schools in Texas. N.Y.Cornell.
- Financing public education in Texas. N.Y.Cornell.
- Problems of rural school attendance. N.Y.Cornell.
- Community activities of teachers of agriculture in relation to teaching. N.Y.Cornell.
- The relation of speed and accuracy in mental functions. N.Y.Cornell.
- A study of instruction in the New York State College of Agriculture. N.Y.Cornell.
- Adaptation of junior/<sup>high</sup> schools to small communities. N.Y.Cornell.
- Selection as a factor in the efficiency of schools. N.Y.Cornell.
- Analysis of school population as determining type of instruction needed. N.Y.Cornell.

Rural Population.

- Movement of population to and from farms. (P) Mo.
- Movements of rural population in Missouri. Mo.
- Rural migration in relation to ability and community advantages. (P) Mich.
- Factors influencing the effective location of rural groups. (P) Mo.
- A study of the causes and effects of the decreasing number of farms in North Dakota. (P) N.Dak.
- The effect of the development of manufacturing in a given region on the welfare of the rural population. (P) Tenn.
- Investigations of economic and farming conditions in irrigated districts. (Berkeley Substation) Calif.
- Activities of other States and the United States in promoting rural progress. Tex.
- A study of rural life worth imitating. N.J.

RURAL SOCIOLOGY--Rural Social Organization.

- A study of rural social organizations. N.Y. Cornell.
- A study of rural community organization in Wisconsin. (P) Wis.
- Rural social organizations and agencies. Factors entering into the success or failure of rural social organizations. (P) N.Dak.
- The relation of the social, economic, and educational conditions of families on Oklahoma farms to their membership and activity in farm organizations. (P) Okla.
- A study of the attitude of farmers and their families towards farming. (P) S.Dak.
- A study of the attitudes of rural people towards organization policies and problems, together with the reasons for prevailing attitudes. (P) Va.
- Tenure, economic status, and progress of farmers as related to farm business organization and methods, their past economic history, and the social and educational welfare of family and community. (P) Okla.
- Survey and analysis of rural church conditions in Texas. Tex.
- Rural community organization (community being defined as the rural trade center and territory adjacent to it) (P) Mich.
- A study of the rural primary groups of Boone County, Mo. Mo.
- A social survey of Locust Township, Columbia County, Pa. (P) Pa.
- An economic and social study of 500 farms and farm homes in representative areas in Arkansas. (P) Ark.
- A study of local and State rural social organizations in South Dakota contributing to a permanent agriculture. (P) S.Dak.
- Studies of selected types of rural social institutions. (P) Mont.
- Guidance resources of rural communities. N.Y. Cornell.
- Village population and service agencies. (P) N.Y. Cornell.
- Physical, economic, and social factors as determinants in certain rural pathological social conditions in Boone Co., Mo. Mo.
- A study of the social aspects of rural life. Iowa.
- Social status of the Spanish in rural Colorado. (P) Colo.

RURAL SOCIOLOGY--Standard of Living.

- The standard of living on the farm as a factor in cost production. Mo;
- Standards of living survey. (P) Mont.
- A study of standards of living in Montana public school dormitories. (P) Mont.
- A study of the standard of living of 1,000 farm families in North Carolina.--To study the relation of varying family incomes to the distribution of expenditures for food, clothing, housing, health, education, religion, recreation, and saving. (P) N.C.
- Rural living.--A preliminary survey of rural living in Minnesota. (P) Minn.

Miscellaneous.

- The influence of sickness and death on the economic and social status of the farm family. N.Y.Cornell.

ADMINISTRATION, ETC.

- Travel. Wash.
- Sorghum investigations. Minn.
- General maintenance. W.Va.
- Publications. W.Va.
- Printing. Wash.
- Station administration. General conduct of station affairs; preparation, editing, and issuance of station publications. Vt.
- Administration. Wash.
- Library--books and periodicals. Wash.
- Librarian. Wash.
- Station library. W.Va.



INSPECTION AND CONTROL

Control of fertilizers.	Conn. State.
Regulation of manufacture and sale of commercial fertilizers.	Ky.
Fertilizer inspection.	Me.
Fertilizer control.	Mo.
Fertilizer control.	Vt.
Inspection of commercial fertilizers.	N.H.
Inspection of commercial fertilizers.	N.Y. State.
State fertilizer.	Tex.
Inspection of feeding stuffs.	Conn. State.
Regulation of manufacture and sale of concentrated commercial feeding stuffs.	Ky.
Feeding stuffs inspection.	Me.
Feeding stuffs inspection.	Vt.
Inspection of commercial feed stuffs.	N.H.
Inspection of feeding stuffs.	N.Y. State.
Feed analysis and investigations.	Tex.
Inspection of foods and drugs.	Conn. State.
Food and drug inspection.	Me.
Inspection of insecticides and fungicides.	Conn. State.
Inspection of insecticides and fungicides.	N.Y. State.
Fungicide and insecticides inspection.	Me.
Calibration of Babcock glassware.	Conn. State
Creamery glassware inspection.	Me.
Testing Babcock glassware.	N.Y. State.

INSPECTION AND CONTROL, (Cont.)

Inspection of cream stations and examination of testers.	Ky.
Inspection of imported nursery and florists' stock.	Ky.
Nursery and orchard inspection.	Ky.
Nursery and orchard and greenhouse stock inspection.	Nebr.
Seed inspections.	Mont.
Seed testing and inspection.	Ky.
Seed tests.	N.H.
Seed testing laboratory.	Mo.
Agricultural seed inspection.	Vt.
State regulatory work. (Veterinary)	Minn.
White diarrhea work.	N.H.
Advanced registry work.	N.H.

CHEMICAL WORK, ROUTINE, AND MISCELLANEOUS.

Miscellaneous analyses.	Minn.
Feed analyses for division of animal industry.	Minn.
Cooperative analysis connected with the projects conducted by the Animal Husbandry and Dairy Divisions.	S.Dak.
Chemical service. Routine chemical work.	Mo.
An analysis of miscellaneous samples (chemistry).	Pa.
State Chemist's work.	Wash.
Analyses and examinations for State Board of Health.	Ky.
Chemical analyses of soil survey samples.	Idaho.
Administration (chemical). Analysis of samples for other departments of the station and residents of the State.	N.Dak.
Analytical work for station departments other than that of chemistry.	Vt.

CHEMICAL WORK, ROUTINE, AND MISCELLANEOUS. (Cont.)

Complete analyses of 40 to 60 samples of milk each month for the Department of Biology in connection with cattle breeding work.

Me.

Analytical work for residents of Vermont.

Vt.

Analysis of check sample cottonseed meal and mixed fertilizers.

Conn.State.















